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**PROSPECTS FOR THE DEVELOPMENT OF
FINANCE IN THE CONDITIONS OF
EUROPEAN INTEGRATION OF UKRAINE**

Monograph

Estonia, Tallin
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**P.34: PROSPECTS FOR THE DEVELOPMENT OF FINANCE IN THE
CONDITIONS OF EUROPEAN INTEGRATION OF UKRAINE**

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P.34 **Prospects for the development of finance in the conditions of European integration
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The monograph is dedicated to the consideration of the problems of the development of the financial market of Ukraine that are relevant in the context of European integration. Very important issues of today, which are highlighted in the monograph, are the restoration of budgetary stability and debt security of Ukraine in the post-war period, improvement of monetary and budgetary policy aimed at macroeconomic stabilization in the country. The authors emphasize the tools that can ensure anti-crisis regulation of the banking system, financial business management. The monograph examines the issues of ensuring the economic security of the construction industry, directions for improving the accounting policy in the field of business as a whole, and improving the quality of audits.

These and other aspects of the current problems and priority directions of the development of the financial market are devoted to the monograph of the team of authors who carry out up to date researches within the scientific school of the National University "Poltava Polytechnic named after Yuri Kondratyuk".

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INTRODUCTION

Ukraine chose the path of European integration and became a candidate for membership of the European Union. This made it necessary to adjust the national economy and social sphere to the European standards. The financial market is an active participant in European integration processes, especially during the period of reboot of the national economy. First of all, the subjects of the financial market are the state, business, citizens, that all are economic agents who enter into financial relations as regulators or objects of regulation, investors or consumers of investment resources.

The war unleashed by Russian Federation in Ukraine leads to significant destruction in all sectors of the national economy. Reconstruction will require significant financial resources, which will be attracted from various sources. At the same time, the financial market of Ukraine will certainly become one of the most important elements of the reconstruction of the national economy, business and social sector.

Ukrainian citizens will also be involved in investment processes, but for this they should know the basics of investment mathematics, financial technologies, and financial literacy. In addition, financial institutions are reluctant to invest in the agricultural and industrial sectors of the economy. The cost of credit resources is too high, and the level of business profitability does not pay off the resources involved. In this context, the subjects of the financial services market, in particular banks and insurance companies, should introduce the principles of social responsibility of financial business to society in corporate governance.

Very important issues of today, which are highlighted in the monograph, are the restoration of budgetary stability and debt security of Ukraine in the post-war period, improvement of monetary and budgetary policy aimed at macroeconomic stabilization in the country.

The authors emphasize the tools that can ensure anti-crisis regulation of the banking system, financial business management, since banks play an important role in the activation of investment processes during the reconstruction period.

In addition, it is necessary to develop business in the production sector of the economy. The monograph examines the issues of ensuring the economic security of the construction industry, directions for improving the accounting policy in the field of business as a whole, and improving the quality of audits. This should ensure quick adaptation of Ukrainian business to international accounting and certification standards.

These and other aspects of the current problems and priority directions of the development of the financial market are devoted to the monograph of the team of authors who carry out up to date researches within the scientific school of the National University "Yuri Kondratyuk Poltava Polytechnic". The founder of this school is the rector of the university, doctor of economic sciences, professor, honored worker of education of Ukraine - Volodymyr Onyshchenko. The author's team is grateful to Volodymyr Onyshchenko, who is a scientific director and consultant for most of the participants of this publication. He formed an active position, perseverance and purposefulness in the scientists when choosing topical issues and qualitatively performing of scientific researches.

The materials of the monograph are presented in the author's edition, which reflects the position of the authors regarding the outline of the problem and the determination of ways to solve it.

The team of authors expresses their gratitude to the reviewers of the monograph manuscript for their wishes, as well as to the foreign partners of the Department of Finance, Banking and Taxation, who contributed to its publication.

CHAPTER 1. CURRENT PROBLEMS OF THE DEVELOPMENT OF THE FINANCIAL MARKETS OF UKRAINE

CURRENT LINES OF FINANCIAL TECHNOLOGIES' DEVELOPMENT IN THE CONDITIONS OF THE EUROPEAN INTEGRATION OF UKRAINE

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Since Ukraine is a candidate for the EU, it is necessary to adjust the national economy and social sphere to European standards. However, the war unleashed by Russia in Ukraine leads to significant destruction in all sectors of the national economy. Reconstruction will require significant financial resources. The amount of damages from the destruction is increasing every day and, according to preliminary calculations, at least 1 trillion dollars will be needed to restore Ukraine after the war with Russia [1].

Aware of the need for rapid recovery of the economy and the social sector, the government is forming a Plan for the Reconstruction of the National Economy of Ukraine. During this period, the military-industrial complex, the energy sector, the construction of housing and social infrastructure facilities, and industry will develop quite actively. Other branches of the national economy will be restored.

The Marshall Plan is being developed to restore the destroyed national economy of Ukraine, since it will be extremely difficult to rebuild without investment support from the countries of the world, without counting on voluntary reparations from the Russian Federation.

At the same time, the main financial investors can become the USA, EU countries, Great Britain, the Baltic countries and other countries of the world, which are not indifferent to ensuring the democratic foundations of independence. The sources of financing for the reconstruction of the national economy of Ukraine should include the following:

- Financial receipts from countries participating in the implementation of the Reconstruction Plan of Ukraine;
- Reparations of the Russian Federation;
- Financial investments of international funds;
- Arrival of strategic investors ready to invest in industry and agriculture to the Ukrainian commodity markets;
- Proceeds from the sale of frozen assets of citizens of the aggressor country;
- Issue of international bonds by Ukraine;
- Ukraine's issuance of domestic loan bonds for reconstruction;
- Citizens' contributions through volunteer and charitable organizations;
- fundraising on international crowdfunding platforms;
- Other sources.

Ukrainians will also be involved in investment processes, but for this, they should master the basics of investment mathematics, financial technologies, and financial literacy. Problems of financial literacy of Ukrainians existed even in pre-war times, so these issues are relevant.

In addition, financial institutions are reluctant to invest in the agricultural and industrial sectors of the economy. The cost of credit resources is too high, and the level of business profitability does not pay off the resources involved.

In view of the relevance of these problems, it is necessary to consider the factors that influence the increase in investment activity of the financial and credit system of the national economy, have a positive effect on the state of the national ecosystem during the period of reconstruction of Ukraine and accession to the EU.

Many Ukrainian scientists pay attention to these questions. Yes, E.S. Osadchy considers the economic essence of financial and credit institutions, their place in the market of financial services [2]. O. I. Baranovskyi defines the ways of ensuring the safety of money circulation, the currency market and inflationary safety, the directions of compliance with budget security, the factors of forming a safe level of state borrowing, the possibilities of increasing the degree of investment security [3]. Barilyuk M.R., Zhovtanetska Y.V. focus in their research on the financial security of banking institutions [4, 5]. S. Vyazovy and I. Pasichnyk investigate the risks for banking activities associated with the development of the Fintech industry. N. B. Demchyshak and R. P. Gudyma [6], O. Filatova study the formation of the fintech industry in Ukraine and the world based on the use of blockchain and artificial intelligence technologies [7]. M. Yatsenko, A. Bondarenko consider the issue of the development of the sector financial services using modern financial technologies [8], and Z. Rudenko investigates the impact of the development of financial technologies on the banking market in Ukraine [9].

The level of financial literacy of agents of market economic relations, in particular, the population, has an important influence on the state of the economy. The issue of financial literacy was considered in their scientific research by the following foreign scientists: A. Lusardi, O. Mitchell, V. Courteau [10, 11], who studied the formation of financial literacy in developed countries. Agarwal, S., Driscoll, J., Gabe, H., Leibson, D. [12] examined learning in the credit card market. Allgood, S., Walstad, W.B. [13] studied the influence of theoretical and practical financial knowledge on attitudes toward credit cards; Bernheim, B.D., Garrett, D.M., Mackey, D.M. highlight the issue of the long-term effect of financial education [14]; Hastings J.S, Madrian B.K, Skimmihorn W.L. determined the mutual influence of financial literacy, financial education and economic results [15].

Among Ukrainian scientists, the issue of financial literacy and awareness is considered by R. Bond, O. Kutsenko, N. Lozytska, T. Kizima [16, 17], A. Klymchuk, D. Radzishavska examine the state of financial literacy in Ukraine and determine the need to increase it [18, 19]. L. Ptashchenko and A. Shabardina highlight the foreign experience of ensuring the financial literacy of the population and outline the ways to increase it in Ukraine, taking into account world developments in this area [20]. O. Blyskavka and A. Zelentsova established the dependence of the development of the national economy on the financial literacy of the population [21].

Despite the multi-faceted research directions of scientists related to the problems of financial literacy and financial technologies in the ecosystem of Ukraine, threats to national security, the need to intensify investments in the destroyed national economy and social infrastructure, new scientific research is the needed. It is necessary to pay attention to the issue of the introduction of information innovations in the financial market and the priority directions of ensuring investment processes in the post-war period of reconstruction of Ukraine. It is also necessary to take measures aimed at increasing financial literacy and investment activity of agents of the national economy, reducing the level of the shadow economy.

An important place in solving many problems in the national economy of Ukraine, minimizing the depth of these problems, is the occupied by the state strategy for the development of the financial market. In the strategy implementation roadmap, considerable attention is the paid to the financial services segment, the dominant participants of which are banking institutions and insurance companies.

In financial relations, the participants of the economic system interact when carrying out various financial transactions. In particular, banking activities are often combined with the activities of insurance companies – banks can provide their clients with services related to insurance and reinsurance of investments. Pension funds interact with insurance companies, investment funds, etc.

Ensuring financial stability requires the coordinated work of all financial market participants: the National Bank and other regulators, banks, non-bank financial institutions, as well as effective support of state authorities.

The strategy for the development of the financial sector of Ukraine defines a number of managed priorities of the National Bank's activities. Their observance is necessary for the creation of an effective and stable financial and economic system. Among them are:

- achieving low and stable inflation, ensuring the stability of the banking system, restoring lending and currency liberalization;
- adaptive regulation of the financial sector, creating conditions for the development of new financial instruments and business models that meet the requirements of the dynamic environment in Ukraine and the world;
- Integration with the EU by bringing the national regulatory framework into compliance with international standards;
- Transformation of the National Bank with the aim of forming a modern central bank on its basis.

In order to properly perform its functions, the National Bank must interact effectively with all groups of participants in the financial economic system, taking into account their needs and interests. Considering this, the strategic goals of the National Bank are aimed at meeting the needs of participants in the financial system. One of the important prerequisites for their achievement is the high institutional capacity of the central bank.

Today's war in Ukraine, the state of crisis in all sectors of the national economy require adequate measures aimed at ensuring the recovery, economic stability and security of the national economy and its most important segments. In this context, it will be necessary to review and supplement the Strategy for the Development of the Financial Sector of Ukraine until 2025, which before the war was successfully implemented by such financial regulators - the National Bank of Ukraine, the National Securities and Stock Market Commission, the Ministry of Finance of Ukraine, and the Individual Deposit Guarantee Fund [22]. Conceptually, the Strategy for the Development of the Financial Sector of Ukraine until 2025 is shown in fig. 1.

The strategy is evolutionary and flexible. For example, in 2021, it was updated and approved by the decision of the Board of the National Bank of Ukraine dated March 18, 2021 No. 97-rsh.

The strategic direction of innovative development of the financial sector of Ukraine envisages the following:

- Ensuring the development of the FinTech market, digital technologies and regulatory platforms
 - ensuring the development of digital technologies, computer design, big data analysis, block chain, automation, robotics and the use of artificial intelligence;

- studying the possibility of issuing the digital currency of the central bank e-hryvnia;
- ensuring the strengthening of cyber security;
- Ensuring the development of SupTech&RegTech
- stimulating the implementation of innovative technologies in compliance;
- Introduction of innovative data exchange tools between the NBU, other state institutions and financial market participants;
- promoting the use of the latest IT technologies by regulators;
- Improvement of information disclosure based on electronic reporting standards;
- Development of the digital economy
- Expansion of market participants' access to public registers;
- Development of the BankID remote identification system of the NBU and online services of financial services;
- Introduction of a system of remote conclusion of transactions in the spheres of accumulative pension provision and joint investment;
- Development and use of cloud technologies, development of IT infrastructure;
- The spread of the use of paperless technologies [22].



Fig. 1. Strategy for the development of the financial sector of Ukraine until 2025

It is worth noting that financial technologies (FinTech) as a scientific term is a relatively new concept, and recently these technologies began to develop not only in the banking sector and acquired the characteristics of a separate industry. In the field of financial technologies, radical

changes are taking place at the current stage, associated with increasing the level of digitalization, openness and orientation towards the consumer and his personal needs. At the same time, the importance of FinTech in the world is quite significant, since the global implementation of financial technologies grows by 15-20% annually [23].

In a broad sense, "financial technologies" are any technologies aimed at improving and automating the provision of financial services. Their main task is to make it easier for large companies, business representatives and end users of services to work with their own finances, in particular in terms of management, increasing the efficiency of use and attracting capital, based on the use of specialized software. FinTech is innovative technologies used by financial institutions, state administration bodies, trade organizations to meet the needs of consumers of financial, administrative services and goods in the context of the development of the consumer economy [24]. That is, initially FinTech was perceived to a greater extent as internal developments and technological processes in a specific financial institution, mainly for its own needs, to which consumers of financial services did not have direct access. In recent years, it has become the basis for all online transactions, including money transfers, lending, paying utility bills, and more. At the same time, the role of innovative technologies in increasing the efficiency of the provision of financial services, which in terms of quality should meet the demands of consumers, has increased. These trends also affected the domestic FinTech market, which actually just started to develop.

Thus, in the pre-war period in Ukraine, the process of digitization was quite active in all spheres of social relations. It is worth noting that the term "digitalization" is used to denote the digital transformation of society and the economy. It envisages the transition from the industrial era and analog technologies to the era of knowledge and creativity, formed and implemented on the basis of digital technologies and innovations in digital business.

Digitalization is taking place most actively in the financial sector of the national economy. The National Bank of Ukraine approved the FinTech Development Strategy in Ukraine until 2025 – a systematic plan for creating a full-fledged FinTech ecosystem in Ukraine with innovative financial services and accessible digital services. This strategy is based on the key directions set by the Strategy for the Development of the Financial Sector of Ukraine until 2025, and its priority tasks are the development of innovations, Cashless economy, and increasing the financial literacy of consumers and businesses. In particular, this document structures and details the trends and directions of development of financial innovations for the next five years [25].

The following are the key effective elements of the Strategy:

- Development and implementation of the concept of a full-fledged regulatory "sandbox" for rapid testing of innovative projects;
- increasing the level of financial awareness and accessibility (inclusion) of the population and business;
- Launch of an academic base with a focus on open banking.

In our opinion, the implementation of the main ideas laid down in the considered strategies should have a positive effect not only on the financial market and its participants, but also on increasing the level of financial literacy and awareness of the population and business, on the state of the national ecosystem as a whole.

The further development of the fintech-market in Ukraine will be facilitated by the continued harmonization of the legal field of Ukraine in accordance with the Association Agreement with the European Union in matters of implementing the norms of the PSD2 European directive into national legislation. This will have a positive effect on increasing the level of economic competition in the

market of financial services and will ensure the innovative development of this market. To this end, it is necessary to develop uniform standards of ARI, authentication and security, ensure the availability of SEP 24/7, form the legal framework of OpenBanking with phased implementation of PSD2, introduce standards for the transfer of information on accounts (transactions, balances, etc.).

In the future, it is necessary to introduce the international standard ISO 20022, which will allow creating a single standard for the exchange of financial messages from electronic payments and securities, which will ensure the functional compatibility of the national payment system with international ones thanks to the application of clear and universally accepted standards. ISO 20022 is an international standard prepared by Technical Committee ISO TC68 Financial Services, which consists of several parts and describes a common platform for developing messages [26]. The use of this standard will help improve the level of customer service and automate payments, make the domestic capital market more accessible to foreign investors.

A positive factor in the formation of a full-fledged fintech-ecosystem, which will correspond to the world level of the financial sector, is the development of Cashless economy. Non-cash payments are actively implemented by developed countries and should increase the stability of the economy and the transparency of economic relations in the country. For example, the share of non-cash payments in Switzerland is 83%, in the USA – 76%, in the Netherlands, non-cash payments account for 73% of the retail circulation of goods and services, and in Estonia, Belgium, Luxembourg and Finland – almost 70% [27]. In Ukraine, the share of non-cash payments is 55%.

Experts analyze how cashless affects the level of the shadow economy, GDP and economic security of Ukraine. The strategy for the development of the financial sector by 2025 provided for a decrease in the level of the shadow economy to 20%. After all, according to experts, the level of the shadow economy depends directly on the level of cash payments in the country, since shadow schemes are most often carried out in cash. The more developed cashless, the fewer opportunities for uncontrollable activities of unscrupulous participants in economic relations. For example, the lowest level of the shadow economy in those countries where cashless payments are most developed, in particular, in Switzerland – 7.24%, in the USA - 8.3%, in Japan – 10.4%. In Ukraine, according to official data, the level of the shadow economy in 2015 was 42.9% of GDP, in 2019 – 27%, in 2020 – 30% of GDP [28]. A high level of the shadow economy has a negative impact on budget revenues, increases the budget deficit, and uncontrolled "dirty" money can be used to finance terrorism, which poses a threat to state security.

Experts are sure that an increase in cashless by 5% within five years can ensure that up to 10% of Ukraine's economy is brought out of the shadows. A study conducted by one of the world leaders in the consulting company EY (Ernst&Young) made it possible to reach the following conclusions: if card payments at terminals are increased by 1% of GDP, the passive shadow economy of the country (when the initiator of cash is the seller) will decrease by an average of 0.037% . For Ukraine, this means additional UAH 2 billion to the budget [29].

There is a debate among experts regarding the correctness of applying the terminology cashless to cashless transactions in Ukrainian practice. Some believe that for tax officials, non-cash payments by bankcard are the considered "cash" transactions and thus must be the carried out through the registrars of settlement transactions (PRO) with the printing of a fiscal check [30].

If the payment is made using a bank payment card without using cash, then it is non-cash. Such an operation is defined as a cashless payment. In this context, we are of the opinion regarding the inexpediency of such discussions, all the more so since conducting through the PRO does not concern all agents of the national economy.

It is worth noting that the war in Ukraine negatively affected the activation of cashless in the national economy and in the economies of many countries around the world. This is due to the increase in the demand for "live money" as a response of the population to the growing uncertainty in the period of war and economic crises. Thus, in Poland, the ratio of cash to GDP increased by 3.5 percentage points, and amounted to 13.8%, in the Czech Republic – by 1.4 percentage points – 12.6%, in Ukraine – by 2.6 percentage points – up to 13.3% [31].

The National Bank of Ukraine, together with other regulators in the financial market, are making efforts to achieve the strategic goals defined by the FinTech Development Strategy of Ukraine. Cashless payments should become convenient, accessible and protected from fraudsters. This is confirmed by the facts when it was necessary to pay pensions in cash in the territories occupied by the rashtists to those Ukrainians who do not have bank cards.

For example, from July 1, 2022, Ukrposhta stopped working in the occupied part of the Kherson region. And although 14 branches of JSC KB "Privatbank" worked in the region during this period, 70,000 pensioners of the Kherson region did not receive payments. After all, these people received payments through "Ukrposhta" in cash [40].

So, Cashless economy is the immediate future of Ukrainian society. After all, Cashless has a positive effect on the reduction of the level of the shadow economy, the activation of investment processes during the reconstruction period, the growth of GDP, the state of economic security of the financial sector and the economy of the state, and promotes the development of technologies and financial inclusion. Cashless payments are convenient for businesses and the public. The convenience effect contributes to the rapid development of mobile banking. Most young people prefer online payments. The priority task aimed at accelerating the implementation of cashless is to increase the level of financial literacy and awareness of the population.

From the point of view of the economy as a whole, the insufficient level of knowledge in the field of financial services indicates a low degree of involvement of broad segments of the population in the consumption of these services, and therefore limits the level and quality of savings and investments, which determine the potential for economic growth.

The basis of the problem lies in the nature of financial services (products) and the markets in which these services (products) are provided. Research by scientists, devoted to the problem of information on financial markets, revealed a number of factors that determine the need to increase the financial literacy of the population (Fig. 2).

These factors lead to a high level of unevenness of information in the markets of financial services (products), as well as limited opportunities for consumers of financial services (products) to adapt to changing market characteristics. A low level of financial literacy leads to negative consequences for consumers of financial services, the state, the private sector and the ecosystem as a whole.

The importance of issues of low level of financial literacy of the population has especially increased in recent years, when problems related to the current crisis have become actualized: the growth of personal debts of the population, the lack of effective savings, the inability of citizens to protect their own well-being, etc. The war exacerbated these problems and caused the emergence of new, larger-scale ones. That is why it is necessary to increase attention to the development of financial technologies and the problems of increasing the financial literacy of the population.

Today, in many countries, one of the most important and significant elements of the general state economic and social policy is increasing the financial literacy of the population. Interest in the topic of personal finance planning and financial literacy is connected with the fact that even in

countries where a modern system of economic education has been built; a significant number of citizens are poorly oriented in matters of personal finance.

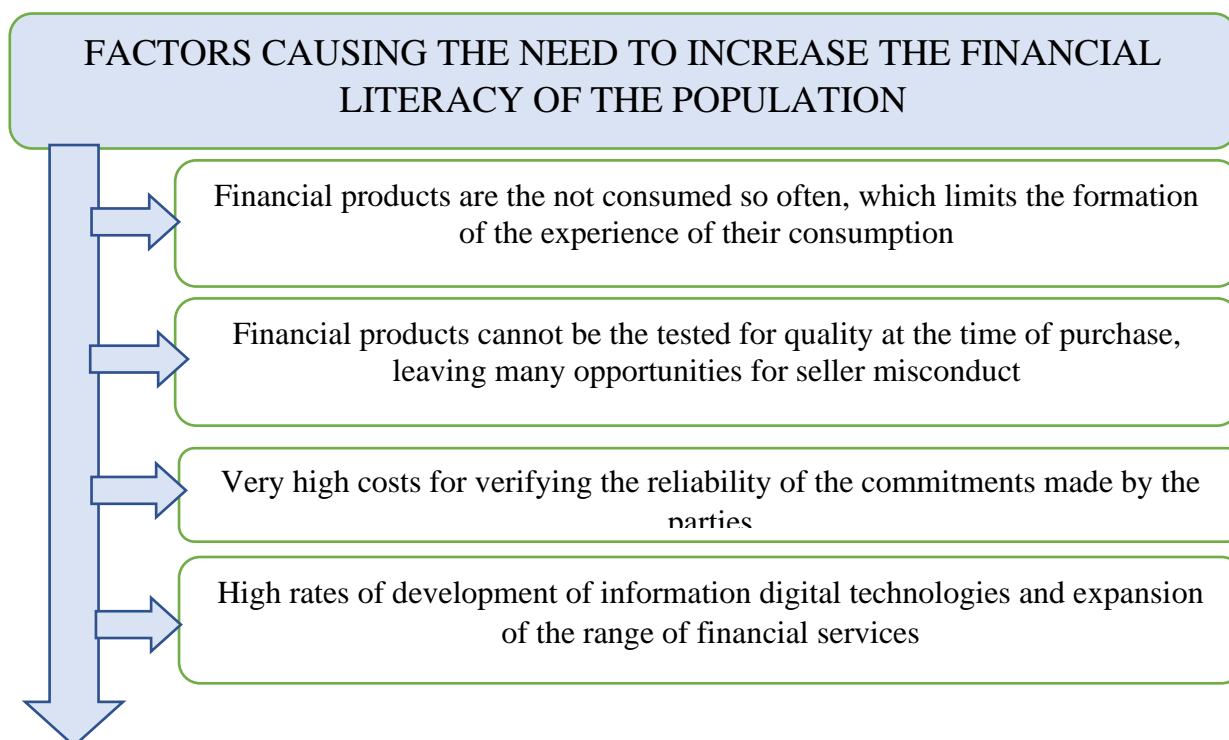


Fig. 2. The main factors determining the need to improve financial literacy

The Organization for Economic Cooperation and Development (OECD) defines financial literacy as "a set of knowledge, abilities, skills, attitudes and behavior of a person, necessary for making important financial decisions and for achieving personal financial well-being" [31]. Today, according to the World Bank, more than 70 countries have approved or prepared for consideration a financial literacy strategy [32].

We conducted an analysis and review of foreign financial literacy programs using the examples of Australia, Great Britain, the United States, and China.

The Australian government launched a national financial literacy program in 2004. It included the establishment of the Financial Literacy Fund (since 2005). The Foundation created an educational website "Understanding Money". The National Financial Literacy Strategy has been developed, the main theses of which are:

- Education through schools and other institutions of society;
- Provision of accurate and independent information;
- defining the boundaries of education and developing additional innovative solutions for implementing ideas of financial well-being and changing the behavior of citizens regarding financial transactions;
- partnership of many sectors, including support of financial literacy programs by private companies, promotion of better achievements in this area [33].

In Great Britain, a special organization – the Money Advice Service (Money Advice Service) has been operating since 2011 [34]. It was organized by the Consumer Financial Education Body (CFEB). This service provides free consulting services to citizens that help them make sound financial decisions. The service is independent, its actions are aimed at supporting both youth and

adults. The main goal is to ensure public understanding of financial processes within the country and abroad. The priority directions in this area are:

- help to young parents;
- Work in schools and other educational institutions (for example, training organized by the group on financial education of young people - Personal Finance Education Group, PFEG);
- Development of online products to improve financial literacy;
- providing advice on the use of money [35].

Great Britain is traditionally considered a country with developed philanthropy, so the public sector of financial literacy is quite large here.

Regarding the United States of America, we note that the country has significant experience in the field of increasing the financial literacy of the population. In 2002, the United States Treasury established the Office of Financial Institutions (OFI), a government agency. The Financial Literacy and Education Commission (FLEC) was organized jointly with the US Congress. In 2006, the National Strategy for Financial Literacy was developed. In the United States, there is the following vector of measures to ensure financial literacy:

- Emphasis on an individual approach;
- Creation of telephone lines for financial issues;
- instilling financial skills in children in schools [36].

The USA has achieved quite significant results: financial literacy in the country is at a high level. Here, children can receive a bank card at the age of 10, in most states the circulation of cash is reduced to a minimum, and the population is highly integrated into the financial sphere of society. In the United States, it is also customary to arrange financial centers in universities, where students can obtain information necessary for financial transactions both during their studies and after graduation.

The Brazilian government relies on public programs in this area, with a special focus on youth work. At the state level, there is currently a National Strategy for Improving the Quality of Financial Education (Estrategia Nacional de Educação Financeira, ENEF). It was developed by a working group, which included representatives of state authorities (committee for regulation of financial markets, ministries of education, finance, justice, social protection), as well as employees of the country's largest banks and credit organizations [37]. During the development of the ENEF program, the authors took into account that about 82% of Brazilian citizens did not know the exact interest on their loans, and 87% had no savings or little savings. Therefore, the goal of the state has become wider involvement of the population in the activities of financial markets and increasing financial literacy of all segments of the population. The peculiarity of this program is that it covers a large part of society, and not only a certain category of citizens. For example, ENEF includes measures to increase the financial literacy of schoolchildren. They include:

- Teacher training based on materials and curricula developed by the Central Bank of Brazil;
- Development of textbooks and multimedia programs on this topic for different age categories of students.

In China, as in Brazil, the great role of the state in the process of raising the level of financial culture of the population is recognized. However, the People's Republic of China currently lacks a single state program aimed at improving citizens' financial literacy. It is possible to note only the efforts of individual authorities in this field. These include the development of the Program for Improving Financial Literacy among Students (CIEFR). This program was jointly prepared by the Ministry of Education and the Ministry of Finance of China. Its purpose is to spread information

among schoolchildren and students about the possibility of obtaining educational loans, as well as help those students who have difficulties with paying off educational loans.

Let's summarize the results of the analysis (Fig. 3).

The results of the research of many scientists and specialists indicate that the level of financial literacy of the population is quite low in Ukraine. Even in pre-war times, about 15% of the population did not have the opportunity to make investments at all due to insufficient financial resources. In addition, people do not want to cooperate with the financial system in Ukraine, because they do not trust it. Due to the peculiarities of the historical experience in Ukraine and the activities of many fraudsters in the financial sphere (financial pyramids, intermediaries, funds, banks, etc.) during the transformation period, this problem is very acute. At the same time, the financial market is actively developing, new instruments, forms and types of financial products are emerging. However, on the part of consumers, the demand for these services is quite low, the population does not know how to effectively use financial instruments due to the lack of necessary knowledge and skills. The markets of insurance, mortgage lending, investment and pension savings are almost not developing.

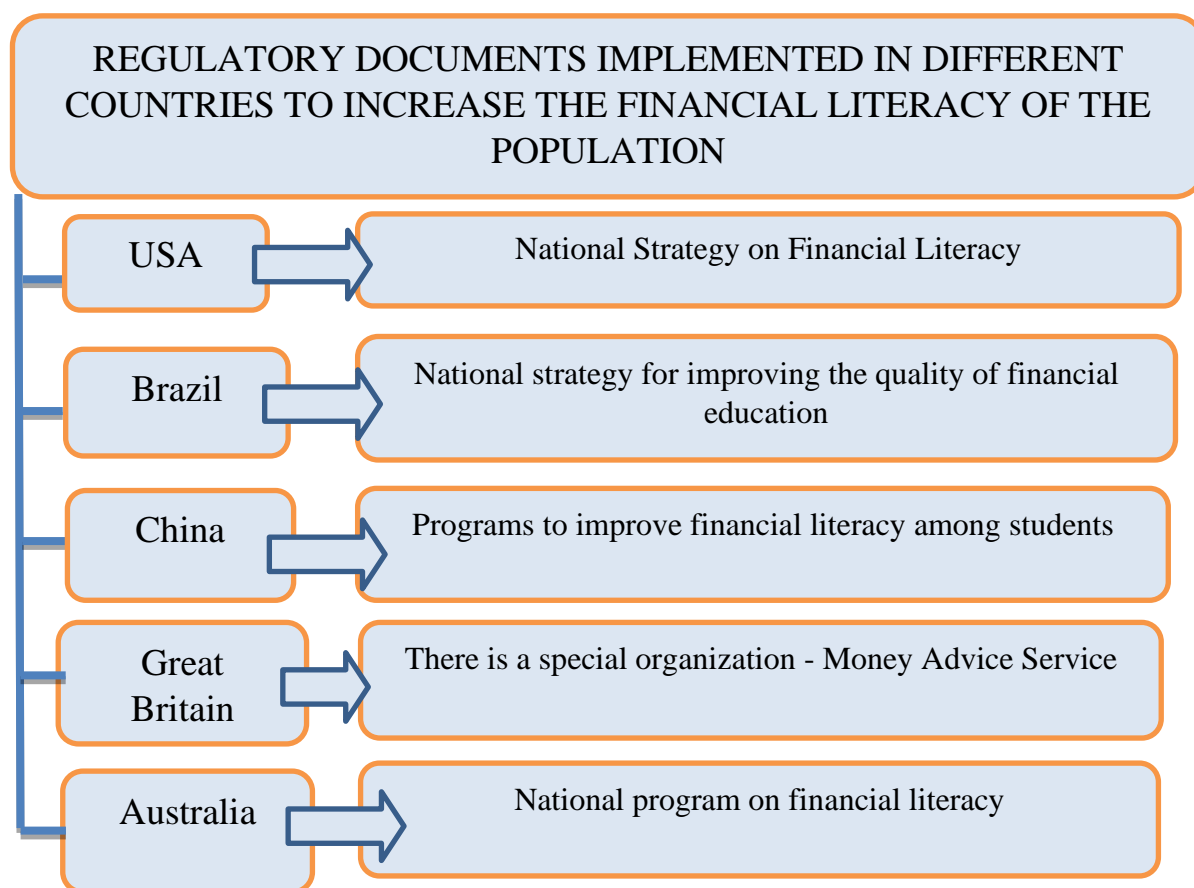


Fig. 3. State regulatory support for raising the level of financial literacy in various countries

As a rule, population savings are made with the help of bank deposits, and consumer lending grows due to the increase of unsecured loans [38].

During the 30 years of the existence of market relations in Ukraine, no one systematically engaged in the financial education of the population, which independently acquired certain knowledge through its own mistakes and losses from unscrupulous banks and other financial institutions, unsuccessful investments, etc.

We conducted a survey of citizens regarding their awareness of money management issues and established the following. 113 people of different age categories took part in the survey – from 14 to 69. Among them, 16% were men, 84% were women.

Almost 64% of the respondents answered that they are not satisfied with the level of income, more than 73% of the respondents make large purchases at the expense of saved money, only 23.9% use digital technologies (phone application). More than 73% of respondents do not plan their family budget. Only 36% of respondents are willing to invest in the bank. Only 23% of respondents gave a positive answer to the question of whether it is practiced in the family to save money by making a deposit. Almost 86% of respondents do not invest in securities [39]. More than half of the respondents believe that the basics of financial literacy should be taught by parents and trained specialists within the framework of state programs to increase the level of financial literacy. The conducted survey confirmed the need to intensify measures to increase the level of financial literacy of Ukrainians. This issue becomes especially relevant during the period of active development of financial technologies.

At the state level, some measures to improve financial literacy are carried out in Ukraine, but they are not of a mass nature. Thus, one of the priorities of the National Bank of Ukraine is financial inclusion, which is inextricably linked to financial literacy. As part of the cooperation between the Center for Corporate Social Responsibility and higher educational institutions of Ukraine, the Project on "Financial Literacy of Students" was implemented. The project was implemented for three years (2015-2018). Its goal was to increase the level of financial literacy of students, thanks to the introduction of the elective discipline "Financial Literacy" for first-year students of non-economic specialties and to increase the competence of teachers in the methodology of teaching financial literacy.

In recent years, the National Bank regularly conducts measures aimed at improving the financial literacy of Ukrainians. In particular, these are events within the Global Money Week. Educational lectures and seminars are held, for example, within the framework of information days of the National Bank of Ukraine "Economic Express" in the regions of Ukraine.

The National Bank of Ukraine has developed a vision of the Strategy for the Development of the Financial Sector of Ukraine until 2025 and directions for the development of financial literacy. One of the strategic goals of the Strategy is to increase the availability and level of use of financial services [22].

Important directions for achieving this goal are summarized in Figure 4.

Measures to increase the availability and level of use of financial services provide for the activation of FinTech development, which confirms the need to increase the level of financial literacy of Ukrainians.

The following measures must be taken:

- actively use personally oriented technologies for teaching financial literacy, taking into account the age categories of citizens;
- organize courses for specialists who will teach financial literacy;
- continuity of financial education should be ensured, starting with preschool education, school, university, for the economically active population and pensioners;
- create telephone lines and Internet channels for providing consultations on financial issues;
- using the experience of Australia, it is expedient to create visual sites to improve the financial literacy of children, youth, adults and courses based on universities and local public organizations.

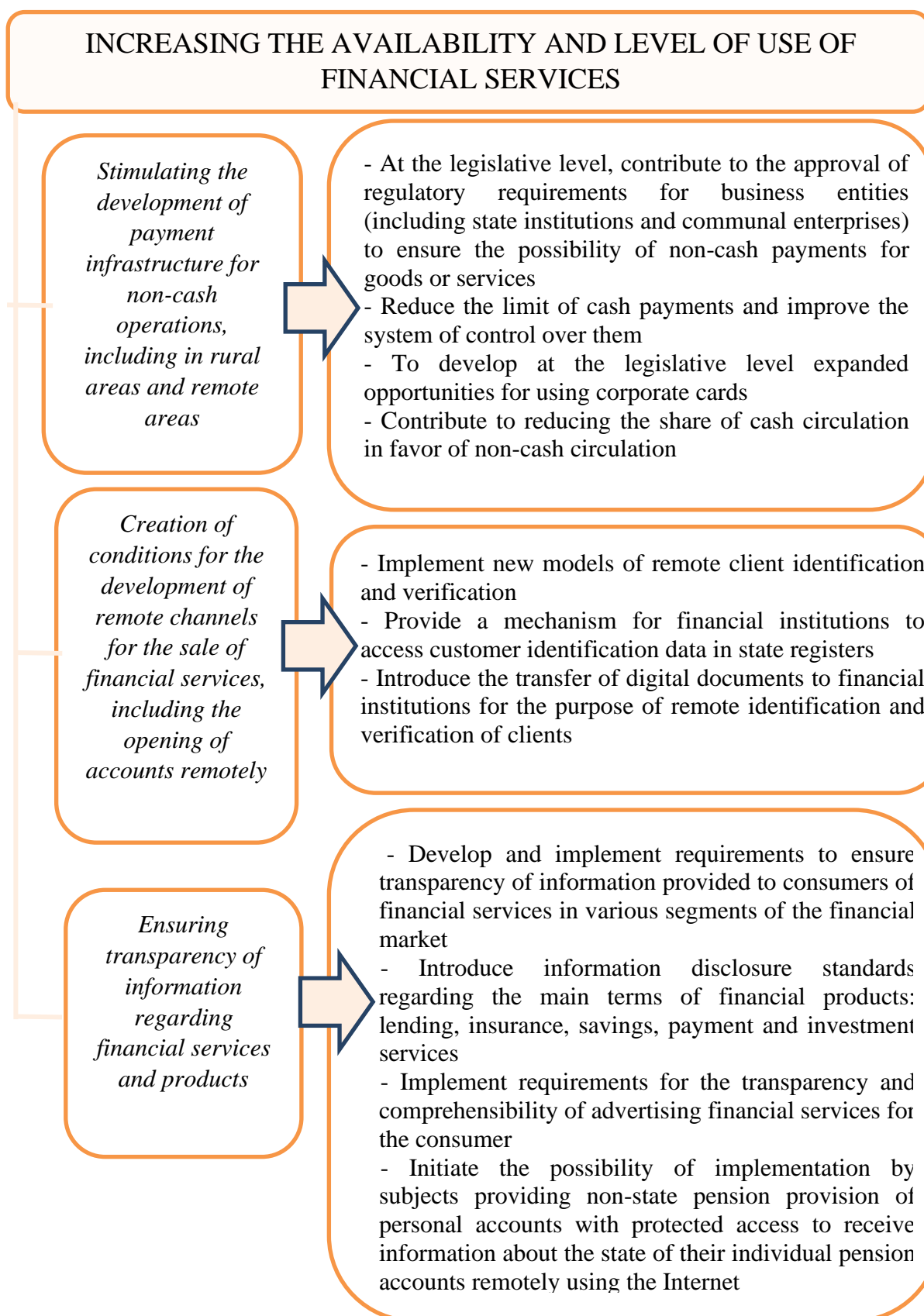


Fig. 4. Priority measures to increase the availability and level of use of financial services in the period of rapid development of FinTech

At the same time, educational activity should be systematic and in the long term, foresee the continuity of the process, and training should be based on innovative game technologies and training's. Financial literacy training should focus not only on acquiring skills to effectively cooperate with banking institutions, but also on insurance, managing money in everyday life, effective non-state pension savings, investing in securities, etc.

Today, Ukraine has chosen the path of active digitization in all areas of public relations. It is worth noting that the term "digitalization" is used to denote the digital transformation of society and the economy. It foresees the transition from the industrial era and analog technologies to the era of knowledge and creativity, which are formed and implemented on the basis of digital technologies and innovations in digital business [22].

So, it is an undeniable fact that the spread and use of financial technologies affects all strata of Ukrainian society. The conducted research confirmed the low level of financial literacy and awareness of the population. Rapid development of mobile banking, activation of the use of non-cash payments will contribute to revitalization of investment processes, transparency of financial flows. Increasing the level of financial literacy of Ukrainians will contribute to the formation of trust in financial intermediaries, the improvement of the well-being of ordinary citizens, the formation of new views on non-state pension provision and insurance services. All this will lead to economic growth in the national economy. The priority task, which is aimed at intensifying measures to increase the level of financial literacy and awareness of the population, is the formation of proposals for the development of programs to increase financial literacy for various target audiences.

Summarizing, we note that in the pre-war period, the National Bank of Ukraine, together with other regulators in the financial market, made efforts to achieve the goals defined in the Strategy for the Development of the Financial Sector of Ukraine until 2025 and the Strategy for the Development of FinTech of Ukraine. In our opinion, the implementation of the main ideas embedded in the considered strategies should be revised. Attention should be paid to the need to intensify the involvement of credit institutions in the financial services market in the investment processes of the recovery of the national economy in the post-war period.

It was determined that the further development of the FinTech market in Ukraine will be facilitated by the continued harmonization of the legal field of Ukraine in accordance with the Association Agreement with the European Union in matters of implementing the norms of the PSD2 European directive into national legislation. This will have a positive effect on increasing the level of economic competition in the market of financial services and will ensure the innovative development of this market. To this end, it is necessary to develop uniform standards of ARI, authentication and security, to ensure the availability of SEP 24/7, to form the legal framework of OpenBanking with the gradual implementation of PSD2, to introduce standards for the transmission of information on accounts (transactions, balances, etc.). It is necessary to introduce the international standard ISO 20022, which will allow creating a single standard for the exchange of financial messages from electronic payments and securities, which will ensure the functional compatibility of the national payment system with international ones thanks to the application of clear and generally accepted standards in the world. The use of this standard will help improve the level of customer service and automate payments, make the domestic capital market more accessible to foreign investors.

It is argued that Cashless economy is the immediate future of Ukrainian society. After all, cashless payments will not only contribute to reducing the level of shadowing of the economy, but

also activate investment processes and become convenient for economic agents and non-residents. The convenience effect contributes to the rapid development of mobile banking. Cashless has a positive effect on reducing the level of the shadow economy, GDP growth, the state of economic security of the financial sector and the economy of the state, promotes the development of technologies and financial inclusion. Most young people prefer online payments. The priority task aimed at accelerating the implementation of cashless is to increase the level of financial literacy and awareness of the population.

Summarizing, we note that in the pre-war period, the National Bank of Ukraine, together with other regulators in the financial market, made efforts to achieve the goals defined in the Strategy for the Development of the Financial Sector of Ukraine until 2025 and the Strategy for the Development of FinTech of Ukraine. In our opinion, the implementation of the main ideas embedded in the considered strategies should be revised. Attention should be paid to the need to intensify the involvement of credit institutions in the financial services market in the investment processes of the recovery of the national economy in the post-war period.

The results of the research of many scientists and specialists indicate that the level of financial literacy of the population is quite low in Ukraine. About 15% of Ukrainians do not have the opportunity to make investments due to insufficient financial resources and mistrust of financial institutions and intermediaries. In recent years, the volume of services offered on the financial market has grown several times, but the level of financial literacy of consumers has not radically changed.

The directions of increasing the level of financial literacy of Ukrainians in the conditions of the rapid development of FinTech have been determined.

In particular, the following measures should be taken:

- actively use personally oriented technologies for teaching financial literacy, taking into account the age categories of citizens;
- educational activity should be systematic and in the long term, foresee the continuity of the process;
- educational activities should be based on innovative game technologies, trainings;
- courses for financial literacy specialists should be organized, continuity of financial education for all segments of the population should be ensured;
- financial literacy training should focus not only on acquiring the skills to effectively cooperate with banking institutions, but also on insurance, managing money in household and everyday life, effective non-state pension savings, investing in securities, etc.;
- create telephone lines and Internet channels for providing consultations on financial issues;
- using the experience of Australia, it is expedient to create visual sites to improve the financial literacy of children, youth, adults and courses based on universities and local public organizations.

The spread and use of financial technologies concerns all strata of Ukrainian society.

Rapid development of mobile banking, activation of the use of non-cash payments will contribute to revitalization of investment processes, transparency of financial flows. Increasing the level of financial literacy of Ukrainians will contribute to the formation of trust in financial intermediaries, the improvement of the well-being of ordinary citizens, the formation of new views on non-state pension provision and insurance services. Increasing the activity of citizens as investors will be one of the important incentives for economic growth in the national economy.

In the complex, all the listed measures will contribute to the development of the national ecosystem based on FinTech and the activation of investment processes. The author's proposals are

of practical importance, as they will allow to systematically consider the priority areas of development of the subjects of the national ecosystem in the conditions of FinTech development. The implementation of world experience in programs to increase the level of financial literacy and awareness of Ukrainians will be an effective tool for increasing the well-being of Ukrainians and activating investment processes in the national economy of Ukraine. All this will bring Ukraine's financial services market closer to European standards.

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STATE-OWNED BANKS IN THE BANKING SYSTEM OF UKRAINE: PROBLEMS AND PERSPECTIVES

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In today's challenging situation of military aggression, the maintaining the stable functioning of Ukraine's economy to ensure the viability of the state, as well as determining the ways of post-war recovery and further development of the economy in order to realize the European integration perspective and ensure national security, is becoming an actual issue. An extremely important role in the realization of these tasks should be played by the banking system, which is rightly considered one of the foundations of a stable and balanced functioning of the economy. By expanding the access of economic entities to credit funds, banks increase solvent demand and thus stimulate the development of production. Acting as financial intermediaries, banks ensure the rise of economic activity, the functioning of payment systems, the development of the financial market and, ultimately, the growth of the population's well-being.

Global experience shows that an important place in banking systems belongs to state banks (whose capital is fully owned by the state) and banks with a state share (in which the state directly or indirectly owns more than 75% of the authorized capital) [1]. Their role in the economic system is determined by their realization of important socio-economic functions related to the development of the economy and ensuring macro-financial stability. Such a role is determined by a whole set of factors: the level of development and structure of the national economy, the lines of the economic and political development of the state, historical, national traditions and mentality, etc. In particular, according to the authors [2], the structure of the financial system of any country depends both on the institutional system and on the implementation of democratic principles in the country, a fair judicial system, and the protection of the rights of creditors and investors.

At the same time, the predominance of state-owned banks in the banking system can cause certain problems. In this regard, the question arises about the effectiveness of such banks, their goals and objectives in modern situation and, in a broader sense, about the appropriate level of state participation in the banking sector.

This issue is certainly relevant for Ukraine as well. During the last decade, its banking system experienced a period of dynamic changes and profound transformation. As a result of the policy of "refinement" of the banking system, which was carried out by the National Bank of Ukraine (NBU) in 2014-2017, the number of banks decreased significantly, and due to the nationalization, that accompanied these processes, the share of state-owned banks became predominant in the structure of the capital and assets of the banking sector (Table 1).

It is worth noting that in the 20th century, for a long time, state-owned banks featured prominently in the economies of countries with emerging markets. At the end of the 1980s, their share in total bank assets and liabilities amounted to more than 50%, because it was believed that state-owned banks are important from the point of view of economic security of the country and are necessary in the situation of weak development of financial markets and financial infrastructure. At the same time, practice showed that the efficiency of their operation was lower than that of commercial banks, which was confirmed by further scientific research [5]. This situation was explained, in particular, by the imperfection of their business models, the low level of corporate

governance, the insufficient level of commercial independence, which provoked increased risks and additional costs.

Table 1

**Indicators of the banking system of Ukraine according to the criterion of capital ownership
for the period 2013-2021 (at the end of the year)**

Indicators	2013	2014	2015	2016	2017	2018	2019	2020	2021
Number of banks, units	180	163	117	96	82	77	75	73	71
Number of banks with foreign capital, units	49	51	41	38	38	37	35	33	33
The share of foreign capital in the share capital of banks, %	34,0	32,5	43,3	51,1	35,8	28,2
Number of banks with state participation, units	7	7	6	6	5	5	5	5	4
The share of state participation in the share capital of banks, %	31,7	34,3	30,9	41,7	61,9	66,2	65,4	65,6	65,3
The share of state-owned banks in the assets of the banking system, %	19,0	21,7	27,4	50,6	54,4	59,7	55,2	52,6	46,7

Source: developed by the author on the base of [3; 4].

As a result, in the 1990s, large-scale privatization took place in the banking sector, due to which the situation changed radically. Immediately before the global financial crisis, the government controlled about 18% of bank assets in advanced economies and 30% of bank assets in emerging and developing economies (including the development banks) [6]. Only in a few countries in Southeast Asia, on the contrary, the sector of state-owned banks increased, which was caused by the need to overcome the financial crisis. The latter is further evidence for the conclusion that precisely in the situation of crisis, the state tries to strengthen its influence on the banking system, understanding its crucial importance for the stabilization of the national economy.

At the beginning of 2015, the public sector accounted for approximately 21% of all assets of national banking systems in the world. State banks dominated the economies of Turkmenistan (over 90%), Belarus (over 77%), Russia (about 55%) and China (about 60%). The group with an average level of state participation included such countries as Great Britain (20.0%), Poland (18.5%), Latvia (19.5%). In the Netherlands and Austria, this indicator was about 10.0%, in Hungary - 3.5%, the Czech Republic - 2.9%, Bulgaria - 2.0%, and in the banking systems of Armenia, Lithuania, Estonia and Georgia, the state segment is practically absent [7].

Domestic and foreign scholars have various views about what can explain the high share of state ownership in the banking systems of countries with emerging markets. Summarizing their opinions, we can say that state-owned banks perform the following tasks important for the government:

- stimulating the increase of the technological level by financing on reasonable terms the economic players of priority areas of the economy, and accelerating the development of infrastructure;
- financing of priority national projects and programs (in particular, regarding energy efficiency, road construction, regional development, informatization etc.);
- stimulating the increase in the export of goods with high added value and the import of technologies;

- stimulation of the development of small and medium-sized enterprises through the optimization of lending terms, organizational assistance and consulting support;
- ensuring the provision of banking services in areas that are unattractive from a commercial point of view for private banking business, etc.

Since the creation of the banking system of independent Ukraine, only two state-owned banks have operated in it for a long period: “State Savings Bank of Ukraine” (Oschadbank) and “State Export-Import Bank of Ukraine” (Ukreximbank). Each of these financial institutions, despite the universal character of their operation, performed certain specific tasks. Oschadbank, having the largest network of branches, including in rural areas, worked with individuals, primarily in terms of accumulating funds and making payments. Ukreximbank acted as the government’s financial agent for international lending and served the foreign economic activities of large and medium-sized enterprises.

In 2003, another state-owned bank – “Ukrainian Bank for Reconstruction and Development” (UBRD) was created aiming the promoting the development of innovative infrastructure in Ukraine. The share of all mentioned banks in the capital and assets of the banking system was insignificant (5-10%) and in 2008 it was equal to the share of state-owned enterprises’ output in GDP, which testified to the parity of the government’s participation in the real and financial sectors of the economy.

With the beginning of the global financial and economic crisis in 2007, the situation gradually began to change. Firstly, the government significantly recapitalized two *systemically* important state-owned banks. Secondly, in order to maintain the stability of the banking system, a decision was made on the state’s entry into the capital of three more banks - Ukrgasbank, Rodovid Bank and Bank “Kyiv”, which, together with UBRR, formed a group of so-called quasi-state banks, since the state’s share in their authorized capital was from 93% to 99.99% (the modern term is “banks with a state share”).

The choice of the above-mentioned banks for the recapitalization was explained by the fact that the first two institutions belonged to the top twenty banks of Ukraine in terms of assets, and they concentrated a considerable part of the financial resources of the entire banking system. Bank “Kyiv” specialized in servicing construction organizations and accumulated much of the funds of the construction industry, which could become a catalyst for exiting the crisis. During decision-making on the recapitalization of these banks, it was assumed that after the stabilization of the situation, the government equity stake would be sold, and the invested funds would be returned to the public budget.

Later, the experts concluded that the nationalization and state recapitalization of the problem banks were ineffective, since only one Ukrgasbank was able to stabilize operations and ensure profitability. As of 01.01.2012, the government’s expenses for entering the capital of three banks amounted to UAH 18.6 billion [8, p. 282-286]. In 2011, Rodovid Bank was granted the status of rehabilitation bank in order to work with problem assets of state and quasi-state banks. However, in the future, both this bank and the Bank “Kyiv” were declared by the National Bank of Ukraine as insolvent with the prospect of further liquidation. The inadequate level of government control over the operations of these banks and the targeted use of funds provided from the public budget were not least among the reasons for this result.

The years 2012-2013 were marked by the foundation of two more state-owned banks in Ukraine. It was assumed that the “State Land Bank” (with a charter capital of UAH 120 million) would be engaged in lending to companies in the agricultural sector, as well as implementing

government programs in this area. However, it never started full-scale operations, as evidenced by its financial statements [3], and in 2016 the bank was liquidated. Currently, 83.5% of the capital of the bank “Settlement Centre for Servicing Contracts on Financial Markets”, which was established in 2013, is owned by the National Bank of Ukraine. Based on the license, it continues to carry out clearing operations as a central counterparty for securities transactions.

Therefore, the above-mentioned stages of strengthening the state presence in the banking system of Ukraine indicate, in general, the ineffectiveness of the actions of the government as an owner in the banking sector, the lack of clear mechanisms for solving tasks to support the development of the national economy. This is confirmed by the fact that the state-owned Oschadbank and Ukreximbank, having received UAH 63.5 billion in 2008-2016 to increase the authorized capital, reported aggregate net losses in the amount of UAH 48.7 billion in the financial statements for 2016 [3].

The sale to a foreign investor in 2017 of the “Ukrainian Bank for Reconstruction and Development”, which uncovered losses at that time amounted to more than half of the authorized capital, is a case in point too. This bank did not realize its public mission, primarily due to a low capital base: at the beginning of 2016, the authorized capital of the bank was equal to UAH 118 million with a total balance of UAH 122.6 million. The bank’s loan portfolio amounted to only UAH 394,000, and the most of funds was invested in securities, real estate and fixed assets [9].

It is worth noting that almost until 2022, the issue of restoring the operations of the development bank in Ukraine did not turn into the practical plane, although such a bank, along with the export-import bank, was considered as an integral part of the domestic banking system in the draft Strategy for the Development of the Banking System 2016- 2020 “Synergy of Bank Development and Industrialization of the Economy”, approved by the Committee of the Verkhovna Rada of Ukraine on Financial Policy and Banking [10].

A further substantial increase in state participation in the banking system of Ukraine took place at the end of 2016, when in order to prevent destabilization of the banking system together with the entire Ukrainian economy, the Cabinet of Ministers of Ukraine was forced to decide on the nationalization of PrivatBank, the largest domestic banking institution. At the time of recording serious problems with capital adequacy, credit portfolio quality, and liquidity, 22 million clients’ accounts were opened in it, including 20 million individuals, and 40% of the deposits of the entire banking sector were concentrated in this bank.

According to scholars and financial analysts, the bank was brought to a state of complete insolvency by the irresponsible and self-interested credit policy of its top management, when large amounts of loans were issued for a long time exclusively to companies related to the owners of this financial and industrial group, with subsequent withdrawal of funds to the accounts of offshore companies. And this was despite the fact that at the beginning of 2016, PrivatBank reported a rather small share of insider loans in the gross loan portfolio - about 20%, which is less than the normative indicator of 25%. Low-quality supervision by the National Bank of Ukraine, as well as formal audit control carried out by LLC PricewaterhouseCoopers (Audit), which was subsequently excluded from the register of bank auditors in Ukraine, contributed to bringing the bank to a deficit of regulatory capital in the amount of about UAH 150 billion.

To save the systemic important bank, the Ministry of Finance of Ukraine carried out an additional issue and added state bonds to its authorized capital in the amount of UAH 116 billion (thereby increasing the domestic public debt). The remaining capital deficit was covered by the bail-in operation, i.e., the conversion of liabilities to persons related to the bank into capital.

According to experts' calculations, 4.8% of Ukrainian GDP was spent on the nationalization of PrivatBank and its subsequent recapitalization in 2016-2017.

As a result, Ukraine got a unique situation from the point of view of its economic history. Three state-owned banks and one quasi-state bank (which since 2016, for the purposes of analysis and supervision, have been combined into the group "banks with a state share"), being the largest banks in the country controlled almost 60% of the assets of the banking system, owned more than 65% of its authorized capital, more than 40% of the loan portfolio, and 55% of all client deposits, including more than 60% of the funds of individuals [3]. At the same time, the share of the public sector in the economy, according to the Ministry of Economy of Ukraine, amounted to about 14% at the end of 2018 (by the end of 2021, this share decreased to 10.3%) [11] which indicates a serious imbalance regarding state participation in the real and financial sectors.

At the end of 2016, the government actually tried to strengthen the competitive position of state-owned banks, trying to provide them with a full state guarantee of the reimbursement of individuals' deposits. Such a step was explained by the need to stabilize the situation around PrivatBank. However, in the end, such a guarantee remained, as before, only in Oschadbank, since the law adopted by the Verkhovna Rada of Ukraine was not signed by the President. It is thought that since the real mechanism for compensating deposits at the expense of public budget was not defined anywhere by law, the aforementioned guarantee could act only as an element of creating the image of a reliable bank and would contribute to a certain deformation of the competitive situation in the banking market.

In the economic literature, both domestic and foreign, there is a wide range of opinions regarding the place and importance of state-owned banks in the banking systems of modern countries [6, p. 1-2; 12, p. 4-5]: from the statement about their positive stabilizing role in the national economy [13] to the justification of the negative impact on the growth rate of the economy and well-being [14] and considering them as a potential source of threats to the normal development of the banking sector (due to possible political influence and involvement, market oligopolization, low quality of corporate governance, etc.) [15, p. 52]. However, most scholars believe that it is not so much the size of the public sector in any sphere of the economy that matters, but how it is managed, how efficiently it operates and what risks it generates to financial stability [16].

The most balanced view, in our opinion, is that public financial institutions are an integral part of the banking system but should have clearly defined powers to respond to so-called "market failures". They should be involved in countercyclical lending when private banks lack funds, in providing financing for small and medium-sized businesses, which private banks consider too risky, in expanding access to financial services (financial inclusion), in particular, through strengthening the regional presence and expansion of digitalization.

Research in recent years also shows that state-owned banks play a significant role in overcoming serious problems of our time, such as the COVID-19 pandemic [17] and climate change [18].

Therefore, you need to understand that state-owned banks, as a rule, are less profitable than private ones. Proving the appropriateness of their existing should be carried out taking into account not only the financial results, but also the positive socio-economic consequences of their operations. At the same time, world experience shows that in the case of a significant worsening of the economic situation, the actions of governments mainly focus on providing additional liquidity to state-owned banks, which is directed to support certain programs defined by the state.

It can be argued that, until recently, domestic banks with state participation did not play an appropriate stimulating role. This was largely explained by the existing structure of their corporate governance, including the mechanism for appointing members of supervisory boards, which was determined by the Law of Ukraine “On Banks and Banking”. Starting from 2006 until 2018, the supervisory boards of state-owned banks (100 percent of the authorized capital of which belongs to the government) consisted of fifteen members, who were appointed in equal numbers (5 people each) by the President of Ukraine, the Verkhovna Rada of Ukraine, and the Cabinet of Ministers of Ukraine. Their term of office was five years. This weakened the ability of state-owned banks to operate as market-based commercial institutions, did not allow ensuring an adequate level of transparency for potential investors and taxpayers, and did not contribute to the overall stability of these banks’ operations.

Taking into account the above, the active operations of these banks, in particular, lending was often due to political influence, accompanied by a weakening of credit risk analysis, which led to deterioration in the quality of their loan portfolios. A large proportion of low-quality loans were granted, among other things:

- as part of the support of state-owned companies, which, due to their unprofitability, did not have the opportunity to raise funding on market terms;
- on non-market terms to companies owned or under the influence of politically exposed persons and their partners;
- contrary to the mission and tasks assigned to these banks, - to companies for ordinary commercial projects (in particular, in the field of real estate).

Thus, at the beginning of 2019, the level of non-performing loans in “old” state-owned banks (that is except PrivatBank, in which the disastrous state of the loan portfolio - 83.4% of non-performing loans - was explained by the decisions of the previous owners) amounted to 55.0%, while in private banks - 24.5%, and in the largest banks of foreign banking groups - only 13.9% [19]. It is revelatory that in Ukrgasbank, which, being a quasi-state bank, independently established the procedure for the formation of a supervisory board from among shareholders, their representatives and independent members, the level of problem loans was only about 17%.

It is worth noting that for a long period no strategic tasks were defined in the operation and development of state-owned banks in Ukraine, they functioned as ordinary commercial banks, focusing on the most profitable business segments. Thus, from 2017 to 2019, the amount of lending to legal entities, which was related to the development of the economy, increased by only 8% (from UAH 175.7 million to UAH 189.9 million), while loans to individuals, aimed, as a rule, the purchase of imported goods, increased almost twice [3].

At the same time, it is banks with state participation that were the main buyers of government bonds, thus financing the public budget deficit, rather than channelling funds to the real sector. Thus, at the beginning of 2019, the share of government bonds in the total assets of these banks was 29.7%, while of the banks of foreign banking groups – 3.4%, and of private banks – 8.7% [3].

Therefore, the analysis of the situation in the public sector of the banking system of Ukraine logically led to the conclusion that to ensure its sustainable development, it is necessary to implement a new mechanism of corporate governance in the state-owned banks. After a long discussion and finalization, the relevant decision was adopted by the Law of Ukraine “On Amendments to Certain Legislative Acts of Ukraine on Improving the Functioning of the Financial Sector in Ukraine” dated July 5, 2018 [20]. The latter amended Article 7 of the Law of Ukraine “On Banks and Banking” regarding the functioning of state-owned banks, and in particular, regarding

the procedure for forming their supervisory boards. Now the supervisory boards must consist of nine members, six of whom are independent members elected through a competitive process, and three are representatives of the state (one - on the proposal of the President of Ukraine, one - on the proposal of the government and one - on the proposal of the committee of the Verkhovna Rada of Ukraine, dealing with banking issues). The term of office of such boards has been reduced to three years. Strengthening the supervisory boards' independence will contribute to the minimization of political influence on the banks and will make them more attractive for potential investors.

A directive style should not be allowed in the government's relationship with state-owned banks. As a shareholder, the government acts in the interests of the people of Ukraine, therefore the provision of credit funds (regardless of belonging to state programs) should be carried out taking into account all relevant bank policies regarding credit risk management. Article 7 of the Law of Ukraine "On Banks and Banking" clearly states that a state-owned bank shall not provide unreasonable benefits to individual customers or conduct transactions with customers under conditions that are not current market ones [21].

Also in 2018, the Cabinet of Ministers of Ukraine approved the Principles of strategic reform of the public banking sector, the main goal of which was to create and support a reliable and competitive banking system. A significant part of the latter was to become private in the medium term. Such a goal encompassed two key objectives:

- achieving such financial results of state-owned banks that would ensure their stability and long-term value maximization;
- reduction of the state's share and concentration in the banking system.

The suitability of keeping each bank as state-owned one should be economically justified with a simultaneous identifying of its role in the development of the national economy.

Two years later, in September 2020, these Principles were updated and supplemented [22]. It was planned to reduce the state's share in the banking system from 60% to 25% by 2025. In general, the Principles of strategic reform of the public banking sector includes four action areas.

First of all, for the further effective development of state-owned banks and their successful privatization, it is necessary to implement consistently the reform of their corporate governance with the majority of independent members in the supervisory boards, ensuring the necessary level of transparency and accountability while preventing political interference in the management and operational activities of banks. In addition, state-owned banks should develop codes of corporate ethics based on globally recognized principles and norms of business ethics, recommendations of the Basel Committee on Banking Supervision on corporate governance and risk management, recommendations of the Organization for Economic Cooperation and Development on combating corruption and introducing integrity in public entities management.

It should be noted that by the middle of 2022, three of the four banks with a state share – PrivatBank, Ukreximbank and Ukrgasbank – had a section on their websites entitled "Corporate governance", where complete information on the membership of the supervisory boards formed in accordance with the amendments to the law, regulations on the supervisory board, the code of corporate governance, the code of conduct (ethics), and other documents related to this area were posted. Oschadbank is characterized by less transparency, since on its website one can find only the supervisory board's membership and the code of ethics, there is no other information about corporate governance.

The next action area for reforming the public banking sector was to develop a strategy for each state-owned bank and to form an appropriate business model so that they can maximize their value by using their strategic assets (which are difficult or impossible for competitors to copy).

The strategies proposed for the banks in the Principles include such components as: corporate governance improving; a stable operating platform, including a reliable IT infrastructure; reduction of risks related to the state - decrease of the government bonds' share on the balance sheets of banks and the level of lending to state enterprises; settlement of legal issues regarding problem assets; ensuring a stable return on equity (ROE) at the level of 10-30% based on the operations' focusing.

Taking into account the last requirement, PrivatBank is proposed to transform into a bank that is focused on the retail segment, with a significant share of small and medium-sized business clients and a small presence in the corporate segment. At the same time, the bank should place special emphasis on the importance of returning the funds of the former owners.

Oschadbank will continue its operation as a universal bank that strengthens its position in the retail segment, increases its presence in the SME segment, reduces lending to state-owned enterprises and refocuses on customers of medium-sized corporate businesses. As a primarily corporate bank, Ukreximbank should focus on supporting export-import operations, including non-credit products (export guarantees). Ukrgasbank is focused on lending to corporate clients and SMEs with a simultaneous emphasis on the eco-bank concept, which involves financing projects to improve energy efficiency. This bank should also participate in the highly specialized retail segment, offering products to increase the efficient personal use of energy.

Some financial results of the implementation of the strategies offered to state-owned banks are presented in the Table 2.

Table 2

Key performance indicators of state-owned banks as of January 1, 2022

Indicators	PrivatBank	Oschadbank	Ukreximbank	Ukrgasbank
Authorized capital (UAH million)	206 060	49 472	45 570	13 319
Equity (UAH million)	66 614	21 870	12 447	11 630
Liabilities (UAH million)	340 642	215 018	179 640	111 641
Assets (UAH million)	407 257	236 888	192 087	123 272
Government domestic loan bonds (UAH million)	206 216	92 753	47 700	22 728
Loan portfolio (UAH million)	70 193	74 754	69 331	55 890
Deposits (UAH million)	321 705	188 933	121 473	96 717
Financial result (UAH million)	35 067	1 053	2 728	4 685
ROA (%)	8.6	0.4	1.4	3.8
ROE (%)	52.6	4.8	21.9	40.3
CIR (%)	38	62	37	46

Source: developed by the author on the base of [3].

First of all, the significantly smaller amount of banks' equity, compared to the authorized capital, draws attention, which is especially noticeable in PrivatBank. This is due to the substantial uncovered losses, which appeared as a result of the formation of provisions for credit losses. Therefore, the restoration of banks' equity is directly based not only on an increase in operational efficiency, but also on a reduction in the amount of problem assets on their balance sheets.

In recent years, PrivatBank demonstrated a growth trend and became the most profitable bank in Ukraine, which was result of the fulfillment of the key goals defined by the strategy. However,

the highest ROE among the banks is partly due to its relatively low level of equity capital, as well as significant income from government bonds, which make up more than half of its assets. At the same time, PrivatBank is one of the most operationally efficient banks with a ratio of operating expenses to operating income of 38%, while the average indicator for the banking system is 54.8%.

Oschadbank, as a whole, implemented the goals of the proposed strategy, but achieved only moderate progress in increasing its share in the retail lending market. The bank centralized back-office functions and implemented a single IT platform, developed digital distribution channels, which made it possible to reduce the number of branches (from 2,400 at the beginning of 2020 to 1,600 at the beginning of 2022) and corresponding operating costs significantly. But despite the improvement, its ROE is well below the market level and its CIR is higher it.

Only in 2021, Ukreximbank got a positive financial result and significantly increased operational efficiency (from 103% in 2020 to 37% in 2021). In previous years, its operations were characterized by non-compliance with strategic guidelines and the inability to ensure sustainable financial performance [23, p. 191]. Therefore, for this bank, it is necessary to upgrade its development strategy, which will include a plan for its further transformation.

Ukrgasbank significantly improved its key indicators, focusing on the implementation of the concept of eco-banking, within the framework of which eco-products accounted for about 40% of its loan portfolio by the end of 2021. More than 90% of the bank's loan portfolio is concentrated in the corporate segment and SMEs, which indicates the successful achievement of defined strategic goals. Ukrgasbank has high indicators of return on equity (40.3%) and operational efficiency (46%).

An important task of the Principles is the consistent implementation of plans for the government's exit from the capital of state-owned banks. The goal of the state is to reduce the market share of state-owned banks to 25% by 2025, based on the fact that European countries with developed financial markets have a share of state-owned banks of less than 30% (Great Britain, France, Spain, Italy, Portugal, etc.). This will happen through the sale of majority stakes to strategic investors, including international financial organizations, as well as through an IPO. At the same time, the state will promote the transformation of state-owned banks into attractive property for private investors, including the creation of a favourable legislative, regulatory and management environment. However, it should be noted that currently only Ukrgasbank has made significant progress in negotiations with the International Finance Corporation regarding the finalization of the loan agreement with subsequent conversion of the loan into the bank's capital.

A separate area of implementation of the Principles of strategic reform of the public banking sector is to reduce the share of non-performing assets on the balance sheets of state-owned banks. It is expected that during the implementation of the Principles, it will decrease to the level of less than 20% of the total amount of assets, while most of such assets are planned to be realized in a profitable way.

In 2017, non-performing loans in state-owned banks accounted for about UAH 340 billion, which was 57% of the total amount of non-performing loans in the banking system. Further dynamics of the share of non-performing loans in the portfolios of state-owned banks is shown in Figure 1.

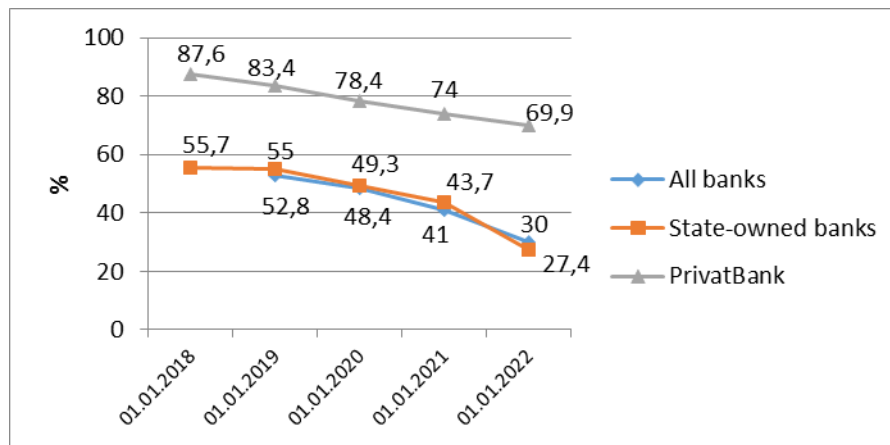


Fig. 1. Dynamics of non-performing loans' share in the loan portfolios of Ukrainian banks for the period 2017-2021 (%)

Source: developed by the author on the base of [19].

As we can see, state-owned banks, with the exception of PrivatBank, have reduced this share by two times in four years and have already approached the target. At PrivatBank, the reduction in the share of NPLs was only 20%. However, it is worth noting that during the period of martial law in Ukraine, the amount of problem loans of all banks will undoubtedly increase, despite the fact that banks can carry out balanced restructuring of loans, which will contribute to the normalization of the debt burden of borrowers and strengthen the stability of the banking sector.

Definitely, the full-scale military invasion, which began in February 2022 and became a huge external shock to the entire economy, presented new tasks to Ukrainian banks with state participation. In this situation, it has become irrelevant and impractical to achieve the goals and quantitative performance indicators that were defined by the development strategies of each bank. During the period of martial law, state-owned banks were identified as entities of the critical infrastructure of the banking system, which ensure its stability and the economic security of the state.

Financing of the following spheres was defined as the main priorities in the operation of state-owned banks:

- business entities that suffered as a result of armed aggression, in particular, with the aim of meeting the needs of the Armed Forces of Ukraine and the population;
- the agricultural sector of the economy for the purpose of food security of the country, including related industries that ensure the performance of agricultural enterprises;
- critical infrastructure enterprises;
- food industry, food retail and related industries aimed at food supply of the population;
- infrastructure projects aimed at restoring social, transport and critical infrastructure facilities;
- transport and logistics infrastructure of the country and projects related to the development of new logistics solutions;
- support for the relocation of enterprises located in places of active hostilities during martial law;
- production facilities for import substitution of products imported from the aggressor country.

During the period of martial law, in addition to standard sources of funding, in particular, accounts of individuals and legal entities, state-owned banks can use collateral and blank refinancing from the NBU to finance government programs and enterprises of critical infrastructure.

At the same time, the situation of martial law does not cancel, but on the contrary strengthens the need to ensure an adequate level of risk management. To guarantee the financial stability of state-owned banks, the following issues require constant monitoring:

- compliance with liquidity and capital standards, including the amount of the bank's highly liquid assets;
- quality deterioration of the bank's loan portfolio (deterioration of customers' solvency, loss of collateral, etc.);
- data loss, cyber-attacks;
- lack of possibility of uninterrupted provision of services due to destruction of infrastructure, inability of personnel to perform their functional duties.

At the same time, after the start of the military invasion, when the catastrophic scale of the destruction of production facilities, energy, transport, and social infrastructure by the aggressor became clear, the problem of the absence of a state development bank in Ukraine became especially urgent. The operation model of such a bank has shown its practicability and effectiveness in many countries, primarily in countries with emerging markets.

In international practice, several interpretations of development banks are used. In UN documents, they are defined as financial institutions set up to foster economic development, often taking into account objectives of social development and regional integration, mainly by providing long-term financing to, or facilitating the financing of, projects generating positive externalities [25, p. 10-11]. The World Bank suggests that development bank should be understood as a bank or financial institution with at least 30 percent state-owned equity that has been given an explicit legal mandate to reach socioeconomic goals in a region, sector or particular market segment [26, p. 4].

The operations of development banks are aimed at overcoming infrastructural limitations of economic growth, establishing and modernizing non-raw materials sectors of the economy, science-intensive industry, stimulating innovation, exporting high-tech products, supporting small and medium-sized enterprises, and comprehensive development of the country's territories. As a rule, development banks occupy an intermediate position in the banking system between the central bank as a refinancing centre and commercial banks. They do not compete with the latter but reduce the imperfection of the financial market in those areas that are left out of the attention of ordinary banks due to low profitability, high risk or a significant need for long-term financing. Development banks can either give appropriate financing to other banks, monitoring the implementation of investment projects, or autonomously lend to certain sectors of the national economy.

The state status of such banks allows creditors, primarily foreign ones, to consider these banks as borrowers with a sovereign level of risk. Performance evaluation of development banks includes not only standard indicators of banking operation, but also involves assessing their contribution to ensuring the sustainable development of the national economy, environmental safety, and solving social problems.

So, the plan for the recovery of the Ukrainian economy, which was presented at the Conference on the Recovery of Ukraine in Lugano, Switzerland, in July 2022 proposed the creation of a Bank for reconstruction and development in our country, most likely on the basis of one of the state-owned banks.

It is this bank, accumulating funds that will come from donors and investors, as well as reparations from the aggressor country, that will become a source of finance both for the immediate recovery and for the long-term transformation of the Ukrainian economy. It is proposed to create a Bank for reconstruction and development as an analogue of KfW - a credit institution for reconstruction, founded in 1948 in Germany as a component of the “Marshall Plan”. It will not issue loans directly to businesses, its funds will be channelled to commercial banks for specific projects. That is, they will bear the risks of non-repayment of loans by borrowers, while a Bank for reconstruction and development must jointly analyse what needs to be done to minimize such risks, what should be the priorities for financing, etc.

In our opinion, the success of the new attempt to ensure the full operation of the Bank for reconstruction and development will depend on many factors, the most important of which are: the designing of an effective economic development strategy, the correct identification of “growth points” and recovery driver industries; full control by the state, which will be reflected in a certain model of corporate governance; strict control by foreign partners (international financial organizations, foreign investors). World experience shows the possibility and effectiveness of the development banks of a mixed type, which are engaged in both export-import operations and crediting of projects for the development of the national economy. Therefore, it is possible that the foundation of a Bank for reconstruction and development in Ukraine will take place on the basis of Ukreximbank.

Summarizing, it should be noted that state-owned banks play an important role in the development of the economy, expanding the possibilities of financing innovative and investment projects, compensating for the shortcomings of the market mechanism, thereby creating conditions for long-term economic growth. In general, they are designed to contribute to the strengthening of the economic security of the state, which is especially relevant in the situation in Ukraine during martial law.

However, this does not mean that state-owned banks should dominate the banking market, even in countries with a transformational economy. The situation that has developed in Ukraine is the result of historical trends in the formation of the banking system, the ambiguous policy of the National Bank at a certain stage of its development, the government’s efforts to ensure the stability of the banking system in a crisis by nationalizing a systemically important bank.

Currently, the banking system of Ukraine is asymmetric, although the level of this asymmetry is gradually decreasing (Table 1) thanks to the expansion of the operations of other banks, primarily banks with private capital (as classified by the NBU). This leads to a decrease in the concentration of the banking market, intensification of competition, and an increase in the quality of banking services. However, the existing dominance of state-owned banks gives grounds to assert that the financial performance of the banking system and the ability to ensure its stable operation in this difficult time for Ukraine depend on their functioning. Therefore, in the near future, the most urgent issues of their development, taking into account the current situation, are the provision of effective corporate management, optimization of business models and constant control over the quality of the loan portfolio to minimize the share of problem loans.

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ASSESSMENT OF FINANCIAL STABILITY AS A COMPONENT OF THE BANKING SYSTEM ANTI-CRISIS REGULATION MECHANISM

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The banking system plays a key role in the formation and development of country's economy, and its condition directly affects the effectiveness of financial interaction between various economic entities. This is due to its functional purpose in the system of economic relations and, first of all, the ability to redistribute free financial resources and generate additional funds for the needs of all participants in these relations - the state, economic entities, households.

During the time of independence, the banking system of Ukraine went through a difficult times of formation and development, the last period of which was characterized by its radical restructuring and renovation. The purpose of this transformation was to ensure the reliability of the functioning of the banking system, the ability to resist various threats, the minimization of its activity risks for the undisputed fulfillment of obligations to bank clients and continuously providing financial services. It is quite obvious that the fulfillment of those goals is impossible without ensuring the financial stability of the banking system, which is understood as the ability to ensure equilibrium in the long run by counteracting/adapting/absorbing internal and external shocks based on the use of a proactive approach to identifying and managing threats to the functioning of the bank over time; maintain the continuity, efficiency and financial effectiveness of operation; ensure sustainable targeted financial development through early adaptation to the objective transformations of the economic environment by comprehensive integration of risk-oriented approach and the use of the newest methods to manage the bank in terms of all its business processes [1, p.70].

Today, the Ukrainian banking system operates in extremely difficult conditions caused by military aggression, but continues to perform its functions, maintaining overall operational efficiency. However, the protracted nature of the war and large-scale destruction of infrastructure create new challenges for banks: the growth of credit and operational risks, potential problems with liquidity can destabilize the banking system. In this situation, the National Bank of Ukraine pays special attention to the implementation of a system of measures for early detection and response to increasing risks in order to prevent crisis development. The effective application of the anti-crisis regulation mechanism ensures stability and reliability of the banking system and maintaining the functioning of the economy significantly affected by the war and its post-war recovery.

According to experts, anti-crisis regulation includes a set of measures aimed at predicting and preventing a crisis; identification and diagnosis of threats and analysis of their indicators; reducing the negative consequences of crisis to optimize the financial activity of banking system, overcoming disproportions in the distribution of financial resources [2; 3]. The key to its effectiveness is the full functioning of the special mechanism of anti-crisis regulation in the unity and interaction of its components.

As for the concept of "mechanism", it came to economic science from the technical sphere, but acquired relevant specifications, as a result of which economic, market, financial, organizational-economic and other mechanisms are studied. In particular, the economic mechanism

is understood as a set, a system of elements influencing the economic interests of economic entities, which takes into account the peculiarities of its external and internal environment [4].

The financial mechanism is a complete set of methods, forms, tools and levers of influence on the processes of formation, distribution and use of financial resources in order to ensure sustainable rates of economic growth [5]. The organizational mechanism is considered from the standpoint of organizational and management actions, creation of an organizational structure, relationships between its elements, processes for achieving the main purpose by ensuring the achievement of set goals, etc. [6].

According to the nature of the organization, Chaika Yu. singles out the mechanisms of self-organization and external organization or management. Mechanisms of self-organization allow the system itself to act as a source of organizational processes, to independently transform its own construction, methods of its functioning and development. First of all, these are mechanisms of positive and negative feedback, adaptation and bifurcation mechanisms. Since the development of economic systems, unlike the spontaneous development of natural systems, can be managed and adjusted by people, it is important to investigate the mechanisms of conscious organization or external management [7]. These include management mechanisms and regulatory mechanisms.

Economic encyclopedia edited by S.V. Mocherny provides a definition of the management mechanism as a consciously organized, purposeful and active influence of various management subjects on the process of development and functioning of the social mode of production or its individual sections [8]. At the same time, the mechanism of state management is defined as levers, tools, elements, processes and patterns of a socio-economic nature, with the help of which executive and legislative authorities influence on the economic, financial, and production activities of enterprises, organizations, in order to stabilize and develop the existing socio-economic system [9].

Under the mechanism of regulation Mordan E.Yu. understands a set of certain methods and tools that are at the disposal of regulatory subjects acting according to the functions and principles of regulation, the application of which makes it possible to solve the outlined tasks and achieve set goal - stable functioning of the system [10].

To clarify the meaning of the concept of "mechanism" we can arrange regulation and management mechanisms as interconnected elements that ensure the activity of the organizational system (Table 1) [11].

Table 1

Characteristics of mechanisms as elements that ensure the activity of the organizational system

Types of mechanisms	Purpose of mechanisms	Functional and process components of mechanisms			
Regulation mechanism	Regulation of functioning, activity, process	Goal	Sequence of influence	Means of regulation	Monitoring procedure
Management mechanism	Creating an organizational system for regulation or management	Plan (program) for goal achievement	Organization (organizational planning)	Stimulation (motivation)	Control over goal achievement

Source: [11]

We agree with the authors of the monograph [12] that the mechanism is constantly in progress, consists of elements that being in an active state form a certain process. It is closely related to the concept of a system that characterizes a set of elements, and a mechanism - their interaction to achieve a goal. At the same time, it should be mentioned that the concept of the mechanism of anti-crisis regulation of the banking system in modern economic science has not yet been fully formed and, accordingly, its essence, structure and functions have not been investigated. The foreign experience of state regulation of the activities of banking institutions indicates the presence of common features for all countries, which are: the institute that performs the role of the regulator, its functions and objects of regulation.

Based on existing methodological approaches, we will try to form such a mechanism, giving each element a specific content and combining them taking into account relationships and mutual influence. First of all, the goals that must be achieved as a result of the functioning of the mechanism can be divided into:

- achieving financial sustainability of banking institutions for a certain period of time (tactical goals);
- maintaining the financial stability of the banking sector as a qualitative characteristic in the long term (strategic goals).

The object of regulation is the banking system consisting of banks, as well as branches of foreign banks established and operating on the territory of Ukraine. Subjects carrying out anti-crisis regulation of the banking system should include such authorities and state administration bodies as the Verkhovna Rada of Ukraine, the Cabinet of Ministers of Ukraine, the National Bank of Ukraine, and the Individual Deposit Guarantee Fund.

The Verkhovna Rada of Ukraine, within the framework of anti-crisis regulation of the banking system, determines the legal basis for protecting the rights of consumers of banking services; approves state programs for the restructuring of problem loans; adopts new laws or improves existing ones detailing the process of declaring banks insolvent and withdrawing them from the market.

The Cabinet of Ministers of Ukraine regulates financial processes, protects the strategic and economic interests of the state. The government carries out recapitalization of banks with state participation and, if necessary, nationalization of systemically important banks. The adoption of anti-crisis programs of the government related to the stable functioning of the banking system and its recovery, the creation of special funds. The Ministry of Finance of Ukraine, together with the Entrepreneurship Development Fund, has implemented state lending assistance programs to support Ukrainian business and properly fulfill the government's interest rate compensation obligations.

The National Bank of Ukraine carries out regulation and banking supervision according to the principles of the Constitution of Ukraine, the Law of Ukraine "On Banks and Banking Activities", the Law of Ukraine "On the National Bank of Ukraine", other legislative acts of Ukraine and normative legal acts of the National Bank of Ukraine [13; 14]. The National Bank performs functions of banking regulation and supervision on an individual and consolidated basis over the activity of banks and banking groups within the limits and legislative framework of Ukraine.

Deposit Guarantee Fund was created to protect the rights and legitimate interests of bank depositors and strengthen trust in the banking system of Ukraine. The Fund carries out the procedure of removing insolvent banks from the market, including introduction temporary administration and liquidation of banks, organizes the disposal of all or part of the assets and liabilities of an insolvent bank, selling procedure for an insolvent bank or creation and selling of a

transitional bank. It also organizes the procedure of compensation payments for deposits of individuals.

In our opinion, implementation of anti-crisis regulation of the banking system should be based on the following principles:

- effectiveness: the effectiveness of the mechanism helps to achieve the financial stability of the banking system, the balanced state of the banking market, as well as the formation of a competitive environment;
- predictability: the financial stability of the banking system must be maintained over the medium and long-term periods, which requires the implementation of proactive and preventive measures;
- adequacy: the methods and tools used by the subjects of anti-crisis regulation must correspond to the state of banking system and the environment in which it is functioning;
- transparency: provision of reliable and complete information about the activities of regulatory entities and decisions made by them, as well as about the functioning of banking institutions;
- integrity: decision-making by regulatory subjects undoubtedly depends on the current state of the banking system and the specifics its functioning. It is provided by constant collection and analysis of indicators that directly or indirectly reflect the efficiency of the banking system and its financial stability.

Anti-crisis state regulation mechanism of the banking system is implemented through methods and tools (Fig. 1). Most often, the method is interpreted as a way, a systematized set of steps for achieving any goal, solving a specific task. The tool is understood as a technique or algorithm used as a mean of influencing an object, changing it in order to achieve a useful effect.

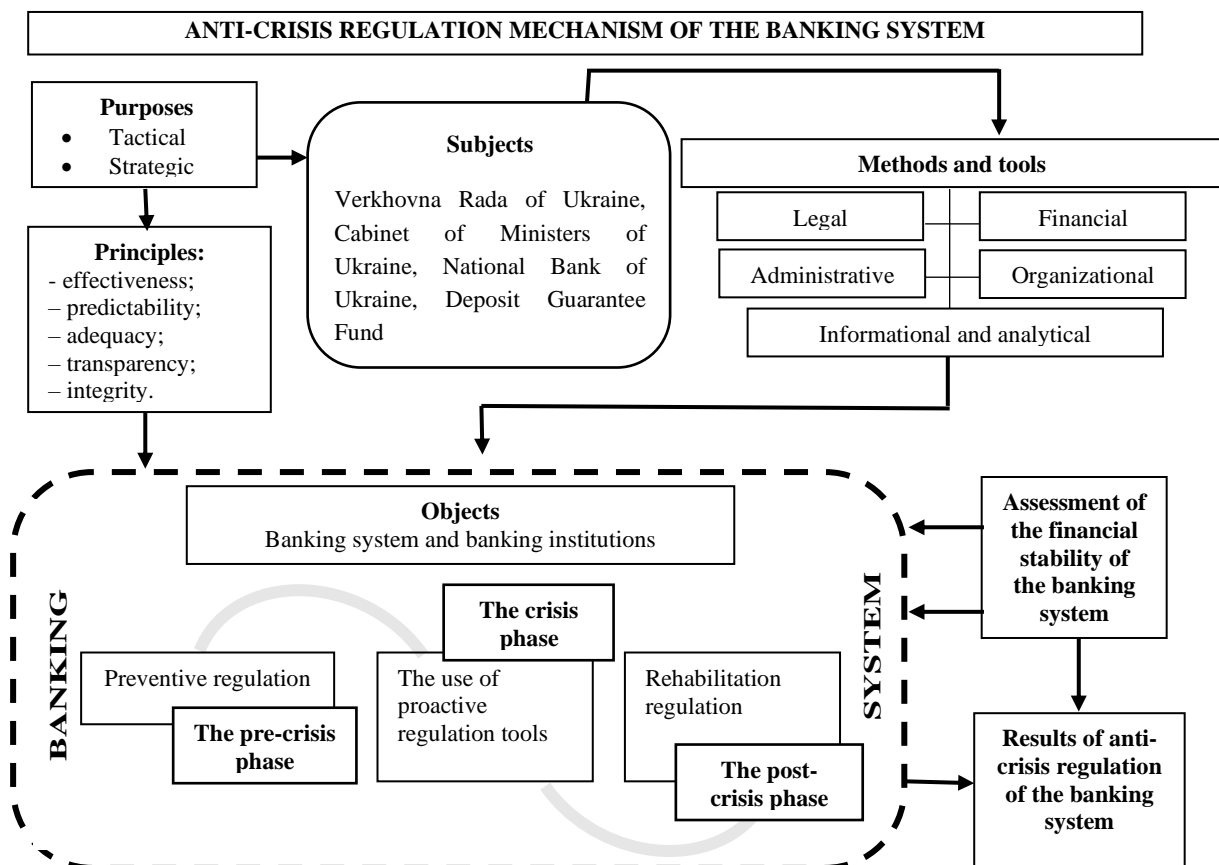


Fig. 1. Components of anti-crisis regulation mechanism of the banking system

Taking into account the above, the method can be considered as a set of tools, which are used to influence the object of regulation. Accordingly, by the method of anti-crisis banking regulation, we mean a set of tools that are used to influence the objects of the banking system through the performance of their functions by subjects in the field of banking regulation. State anti-crisis regulation of the banking system is carried out using the following methods [15]:

1) legal: law-making instruments – ratification of legislative and regulatory acts on the regulation of banks' activities;

Legislative documents protect the rights of consumers of banking services and create additional opportunities for preferential lending for businesses during the crisis. The National Bank of Ukraine promptly ratifies normative legal acts regulating the operation of the banking system in a certain period of time taking into account its specifics;

2) administrative: changing the requirements for bank economic indicators, requirements for business and population lending. Instruments are understood as preventive restrictions provided by NBU, in particular: regulation of currency operations, limitation of currency interventions by the NBU, regulation of interest rates, etc.

In a crisis period the NBU may not apply sanctions for violation of regulations. However, at the same time, a temporary ban is imposed on the distribution of capital, in particular, the payment of dividends is not allowed. The exchange rate of the national currency is fixed. Restrictions on the purchase of currency, cross-border currency transactions are introduced. Restrictions apply to withdrawals from foreign currency accounts. Establishing the compulsory sale of foreign exchange earnings of exporters and shortened terms of its return. Setting limits for daily purchases of foreign currency by banks. Banks are given the temporarily right not to deteriorate the quality of service of the borrower's debt for loans restructured as a result of a decrease in the borrower's income;

3) informational and analytical: use of tools for anticipatory diagnosis and forecasting of crisis processes; carrying out stress testing; making the financial improvement programs, formation of a strategy for the development of the banking system;

Constant monitoring of macroeconomic indicators put into practice. Economic surveys and an overview of the banking sector are conducted. The National Bank organizes and controls the statistical reporting of banks;

4) organizational: a tool for the distribution of spheres of influence between the subjects of the banking system, using the implementation of transformational measures in the banking system.

Insolvent banks are being reorganized through mergers, combinations, transformations, and nationalization. There's also take place changes in spheres of influence and redistribution of functions of subjects of the banking system.

5) financial: include instruments related to the providing financial support, in particular, in the form of bank refinancing, regulation of required reserves, absorption of excess liquidity, etc.

The National Bank maintains the liquidity of the banking system by using such standard instruments as refinancing operations (overnight loans, refinancing loans), direct repo operations, operations with own debt obligations, and operations with government bonds of Ukraine.

Formation of mandatory, general and special reserves to reduce the risk of loss of assets in connection with the bank's default on deposits and other passive operations, to secure certain risks of default of customers, counterparties to the bank on loans and other active operations.

The tools of anti-crisis regulation of the national economy are applied comprehensively, taking into account the possibility of their multidirectional influence or synergistic effect.

In order to take adequate anti-crisis regulatory measures, it is necessary to apply different methods in each of the periods of the functioning of the banking system. In particular, taking into account the cycles of economic processes, pre-crisis, crisis and post-crisis phases can be distinguished.

Before the approach of a crisis, it is better to apply a preventive state regulation of the banking system, which involves the development of methods of responding to detected strong signals of crisis phenomena by using tools that are activated in advance.

On the phase of the escalation of crisis phenomena in the banking system, it is necessary to continue to implement preventive anti-crisis mechanism as well as proactive tools of anti-crisis regulation. This stage is characterized by the development and implementation of state anti-crisis regulation tools aimed at restoring the ability of the banking system to perform its functions, restoring the solvency of banks, restoring trust in them, protecting the rights of depositors, investors and creditors, and reducing the impact of crisis phenomena on the real sector of the economy [16].

The post-crisis phase involves the implementation of policies aimed at improving the financial and economic systems. The rehabilitation regime consists of minimizing the negative financial, economic and social consequences of the banking crisis, using its factors to ensure stable functioning and development, continuing the uninterrupted performance of the functions of the banking system in the changing conditions of the external environment.

During this phase it common to use such tools as an assessment of real financial condition of banking sector, conducting inspections of banks, determining the actual needs for refinancing, improving the legislative and regulatory framework in order to ensure the effective functioning of the banking sector.

If signs of an unstable financial state of the banking system appeared, or the circumstances threatening its stability occurred, the National Bank of Ukraine will have the right to determine temporary features of regulation and supervision of banks or other persons that may be subject of the National Bank of Ukraine inspection, including features of maintenance liquidity of banks, application of economic standards, formation and use of reserves to compensate possible losses due to active operations of banks, to introduce restrictions on their activities.

The activity of the NBU in the field of regulation of the banking system is connected with its constant monitoring of crisis phenomena on the macro and micro levels, primarily those that may affect Ukraine, the formation of mandatory reserves on accounts with the NBU and at the level of commercial banks - reserves for expected losses, early informing second-level banks about the need to take precautionary measures, reviewing the current refinancing mechanism, strengthening control over problem banks.

The results of the implementation of anti-crisis regulation are determined by the level of goals achievement as a result of the functioning of the corresponding mechanism. It is important to ensure constant monitoring of the financial stability of the banking system.

Highlighting the assessment of the stability of the banking system as a separate component of the mechanism allows us to show its important role in the implementation of state anti-crisis regulation of the banking system. The necessity to assess the financial stability of the banking system of Ukraine is defined by the need for a comprehensive understanding of the trends in its dynamics to ensure the effective application of methods and tools of anti-crisis regulation. We propose to use a systematic approach to the anti-crisis regulation of the financial stability of the banking system, which should take into account and combine a set of components that allow to comprehensively develop, implement and apply anti-crisis programs for the financial activities of

banks based on specific indicators for identifying internal and external threats, assessing crisis phenomena and situations, the depth of the crisis and the taking preventive (pre-crisis stage), proactive (crisis stage) and rehabilitation (post-crisis stage) measures.

Assessment of the financial stability of the banking system requires the formation of an effective methodological basis and clarifying the object of assessment. First of all, the object of financial stability assessment is the activity of banking institutions, since the bank itself is an institutional unit that is the primary section and the main component of the formation of the banking sector financial stability. At the same time, it is worth noting that the macroeconomic environment in which banking institutions operate is changing rapidly and dynamically. Therefore, banks' the financial stability is determined by both internal (micro-level) and external (macro-level) conditions and factors of development. That is why the methods of assessing banks' financial stability should also take into account external factors affecting their activity.

The object of quantitative analysis and evaluation of a separate banking institution activity, from the point of view of determining financial stability, is most often defined as:

- capital adequacy and its structure;
- quality and structure of assets;
- profitability, liquidity and solvency of the bank; growth rates of the main activity indicators; banking risks [17, 18].

We systematized and grouped the main methodical approaches for the assessment of financial stability in the banking sector (Table 2).

Table 2

Methodical approaches for the assessment of financial stability in the banking sector

Assessment methods	Approaches to assessment
Coefficient methods	Assessment of financial stability within the framework of macroprudential and microprudential policies
	Stress testing
	Ratio method
	Coefficient analysis
Non-parametric methods	Signal approach
	Ratings
Mathematical methods.	Theory of probabilities
	Theory of fuzzy sets
Econometric and statistical methods	Cluster analysis
	Discriminant analysis
	Correlation analysis
	Factor analysis
	Taxonomic analysis
Graphical methods	Analysis based on the construction of graphs and diagrams
	Analysis based on the construction of cartograms and schemes

Source: systematized by the author based on [19, 20]

Each of the methodological approaches to assessment can find its place in the system of banks' financial stability maintenance, however all these methods have their advantages and disadvantages and can be used both individually and in combination. To understand the specifics of each methodological approach to banks' financial stability assessment and the relevance of its application depending on the phase of anti-crisis regulation of the banking system, we will consider

the essence, advantages and disadvantages of each method and assess the financial stability of banks according to the main ones.

Coefficient methods of banks' financial stability assessment are based on the calculation of indexes (indicators, coefficients) that characterize banks' activity of banks due to their financial statements. This method involves the determination of a significant number of indicators, which allows versatile studying the indicators that reflect the financial resistance and stability of banking institutions. The classification of financial stability assessment approaches within the framework of the coefficient method is somewhat conditional, since coefficients (indicators) can be used as a basis for many evaluation methods. In addition, the ratio method and stress testing, in particular, are components of both micro- and macro-prudential approaches to assessing financial stability in the banking sector. However, the coefficient approach is used more often to determine the trends of preventive anti-crisis regulation of the banking system. It makes it possible to analyze and evaluate the financial activity of banks in the context of diagnosing crisis phenomena and threats due to the identified problematic aspects of banking institutions. It involves the assessment of crisis phenomena and situations, identification of threats and dangers, the type and depth of the crisis and the present quality level of of anti-crisis regulation.

The main problematic aspects of banks' activity in today's conditions remain decreasing level of capitalization, the deterioration of the quality and depreciation of bank assets, the increase in the volume of problematic and hopeless loans, the decrease in the volume of liabilities, the decrease in indicators of profitability and efficiency of operations to a minimum critical value. Therefore, we consider it efficient to present the analytical toolkit for assessing banks' financial stability in the context of our methodical approach that includes 6 groups of indicators, which are systematized by the subject and allow identification of real and potential crisis phenomena and threats, in particular:

- 1) level of capitalization;
- 2) quality of assets;
- 3) credit and investment activity;
- 4) liquidity;
- 5) banks' deposit base;
- 6) profitability and efficiency of banking activity

Indicators for assessing the level of capitalization of banks cover the determination of the following coefficients: solvency, ratio of regulatory capital to assets, dependence on shareholders, ratio of equity to balance currency, ratio of regulatory and balance capital, capital multiplier, financial leverage. This approach ensures the identification of problems in the capitalization level of institutions and corporate management, related to the need of increasing the amount of capital due to internal and external sources of its investment and planning of additional share issues.

Asset quality indicators are based on the determination of the following coefficients: asset risk, asset cost, bank business activity, value of current assets, ratio of income assets to balance sheet capital. These indicators make it possible to predict the "viability" of assets, as well as their ability to produce profit, taking into account liquidity and risks. The asset quality category is closely related to the risks, which, in today's conditions, are diversified into minimal, medium, significant, high and realized risks (the lowest quality category).

The indicators of credit and investment activity of banks include the following coefficients: credit activity, problem loans, the ratio of granted loans and attracted deposits, non-performing loans without taking into account reserved in capital, non-performing loans to total gross loans, foreign currency loans to total gross loans, investment activity, investments in securities to total

assets. Assessment of the profitability and risk of credit and investment activities of banks allows to characterize the size, sectoral focus and level of diversification and concentration of credit investments from the standpoint of their problematic nature and impact on the financial stability of banks, with the identification of crisis phenomena in this field of activity.

Liquidity indicators are based on the determination of a number of coefficients, such as: the ratio of liquid to total assets, the ratio of liquid assets to short-term liabilities, the total liquidity of institutions. Liquidity of banks is not only their ability to pay off their obligations, but also the ability to transform assets into a highly liquid or liquid form in the context of meeting both instant and current needs in liquid funds. The assessment of crisis phenomena in the activity of banking institutions from the point of their liquidity is important within further identification of liquidity and profitability problems. This allows us to state that liquidity is primary in relation to the solvency and profitability of banking institutions.

Indicators of banks' deposit base include a number of coefficients: the ratio of customer deposits to total gross loans (except interbank loans), attracted resources to total liabilities, foreign currency liabilities to total liabilities, deposits of individuals to liabilities, deposits of organizations to liabilities, term deposits to total liabilities of the bank, term and demand deposits, interbank loans to liabilities, interbank loans received and granted. These indicators are important for assessing crisis phenomena in the aspect of maintaining the stability of the resource base of banks and forecasting the outflow of deposits and possible withdrawal of clients' funds under the conditions of development of crisis phenomena at the macro and micro levels [20].

Indicators of profitability and efficiency of banking activity include such factors as: profitability of assets, profitability of capital, ratio of interest margin to total income, non-interest expenses to total income, cost of resources, efficiency of using payable liabilities, efficiency of using total liabilities, banks' efficiency, net interest margin, net spread. These general indicators make it possible to determine the level of profitability or loss of banking activity in absolute and relative sizes and to instantly react to crisis phenomena caused by inefficient activity in the operational, investment and financial spheres of activity.

On the basis of the received estimated values of the coefficients, their optimal values are compared with calculated values, and the type and depth of the crisis is determined, which, in our opinion, can be:

- 1) potential in conditions of stability of bank functioning;
- 2) hidden (latent) in the case of existing destructive values of analytical coefficients, which requires applying anti-crisis programs based on the use of preventive methods of anti-crisis regulation of banking activities;
- 3) acute if critical values of the majority of analytical coefficients, which confirm the problem in all 6 key areas of the banking business and require applying programs and using reactive anti-crisis regulation methods;
- 4) critical in the case of a situation of deep financial insolvency and unsustainability and the critical value of analytical coefficients.

The proposed approach is based on a comprehensive analysis of indicators of the financial stability of banks with the identification of real and potential crisis phenomena and threats and can be used for an integral assessment of the level of crisis of both the banking system and individual institutions.

We propose to determine the integral indicator of the assessment of the crisis state of banks (*I*) by formula (1):

$$I = I_k \times m_k + I_d \times m_d + I_{я.а} \times m_{я.а} + I_{к.и.д} \times m_{к.и.д} + I_l \times m_l + I_{ен} \times m_{ен}, \quad (1)$$

where I_n – the value of the integral indicator of a certain group of indicators ($I_k, I_d, I_{я.а}$ etc.);

m_n – the value of the weighting coefficient of a certain group of indicators ($m_k, m_d, m_{я.а}$ etc.).

The values of the weighting coefficients are given in the table. 3. The total value of the weighting coefficients of the integral indicator is equal to 1, and the weighting values of the integral indicators of a certain groups are formed taking into account their priority and the significance of the impact on the appearance of crisis phenomena.

Table 3

Weighting coefficients within indicator groups

The name of the integral indicator	Conditional value of the weighting factor	Value
Coefficients for assessing the level of capitalization of banks	m_k	0,1878
Indicators of the bank's deposit base	m_d	0,1456
Asset quality indicators	$m_{я.а}$	0,1877
Indicators of credit and investment activity of banks	$m_{к.и.д}$	0,1456
Liquidity indicators	m_l	0,1877
Indicators of profitability and efficiency of banking activity	$m_{ен}$	0,1456

Source: [21]

Also, the value of the integral indicator of a certain group of I_n indicators is determined by formula (2):

$$I_n = \sum_{i=1}^n I_i \times x_i, \quad (2)$$

where I_n – the value of the i-th indicator within a certain group of indicators;

x_i – the weight value of the i-th indicator.

Crisis phenomena in the banking system, identified on the basis of the presented system of financial stability indicators, can serve as signal indicators for the detection of crisis phenomena and threats and characterize the levels of their depth and nature from the standpoint of the possibilities of onset, growth, strengthening, minimization and liquidation or deepening and development. It is advisable to differentiate the numerical values of the integral indicator of the assessment of banks' crisis state depending on the type and depth of the crisis in a certain range within the framework of 4 levels:

Level 1 – from 1 to 1.20 – a satisfactory level: the existence of signals of a potential crisis in the conditions of the stability of the functioning of banks and the system;

Level 2 – from 1.21 to 1.40 – dangerous level: hidden (latent) crisis. There are destructive values of analytical coefficients, which requires the applying of anti-crisis programs based on the use of preventive methods of anti-crisis regulation of banking activities;

Level 3 – from 1.41 to 1.60 – critical level: acute crisis. There are critical values of most analytical coefficients, which confirm the problem in all 6 key areas of banking business and require the applying of programs and the use of reactive anti-crisis management methods;

Level 4 – from 1.61 and above – catastrophic level: deep financial failure and unsustainability. There are critical values of analytical coefficients. In addition, there are a complete loss of ability to function in unstable conditions, signs of insolvency and unsustainability at the local and systemic levels.

According to the proposed methodological tools, calculations of the main analytical indicators of the level of financial stability of banks during 2018-2022 years were done within the six groups for identifying problematic aspects of activity and further application of anti-crisis regulation tools.

Data from the table 4 allows to state that over the past 5 years, there has been a stabilization of banking activity.

Table 4

The main analytical indicators of assessing the level of financial stability of banks during 2018-2022 years based on capitalization ratios

Indicators	2018	2019	2020	2021	2022*
Solvency ratio	16,18	19,66	21,98	18,01	18,85
Coefficients of the ratio of regulatory capital to bank assets	10,52	13,50	15,67	11,99	12,75
Coefficient of dependence on shareholders	3,02	2,36	2,29	1,88	1,67
The coefficient of the ratio of equity to the currency of the balance sheet	10,77	13,52	11,66	12,49	9,78
Capital multiplier	8,77	7,47	8,71	8,04	8,85
Financial leverage ratio	6,06	5,39	6,52	5,97	6,85

*Note: * - data for 9 months of 2022.*

Source: calculated according to data [22, 23]

However, it is possible to claim a slight deterioration in the level of capitalization of the domestic banking system in 2021-2022, which is manifested in a decrease in the solvency ratio of Ukrainian banks by 3.13%, the ratio of regulatory capital to assets by 2.92%, the ratio of equity to the currency of the balance sheet by 1.88%. However, immediate response of banks to capitalization problems is evidenced by the stable level of the capital multiplier and the financial leverage ratio, which signals a balanced structure of the banking system's borrowed and own resources and a reduction of dependence on corporate rights and the financial potential of bank owners (shareholders).

Banks' liabilities are formed by borrowed and borrowed resources, which determine the deposit base of banking institutions and the possibility of accumulating resources on the interbank market from other financial institutions, including non-bank ones. The growth of crisis phenomena in the deposit activities of banks during 2018-2022 is triggered by the growth of imbalances in the ratio of deposits to total loans - by 88.77%, the resources involved to total liabilities - by 11.54%, the reduction of liabilities in foreign currency to total liabilities - by 20.4%, the ratio of interbank loans to liabilities – by 88.57% (Table 5).

During 2018-2022 volatility was observed in the assessment of asset quality, the deterioration of indicators of bank business activity and the leveling of crisis phenomena, in particular, the riskiness ratio of assets had a tendency to improve by 36.37%, however, it must be noted that such trends were accompanied by a state of crisis and the liquidation of a significant number of banks, exchange rate fluctuations and a significant deterioration in the quality of problem banks' assets (table 6).

Table 5

The main analytical indicators of assessing the level of financial stability of banks for 2018-2022 on the basis of coefficients of banks' deposit base

Indicators	2018	2019	2020	2021	2022*
Ratio of customer deposits to total loans (except interbank loans)	81,83	103,08	138,99	140,36	154,47
The coefficient of the ratio of involved resources to total liabilities	0,78	0,83	0,85	0,86	0,87
The ratio of liabilities in foreign currency to total liabilities	0,49	0,44	0,41	0,34	0,39
The ratio of deposits of individuals to liabilities	0,42	0,43	0,42	0,41	0,45
Ratio of deposits of organizations to liabilities	0,34	0,39	0,4	0,42	0,4
The ratio of interbank loans to liabilities	0,035	0,019	0,015	0,011	0,004

*Note: * - data for 9 months of 2022.*

Source: calculated according to data [22, 23]

Table 6

The main analytical indicators of assessing the level of financial stability of banks for 2018-2022 based on asset quality and liquidity ratios

Indicators	2018	2019	2020	2021	2022*
Asset risk factor	52,85	48,36	41,00	30,02	33,63
Coefficient of banks' business activity	1,60	4,70	2,77	4,46	0,73
The ratio of liquid assets to short-term liabilities	93,52	94,35	86,82	89,13	88,80
Total liquidity ratio	1,13	1,15	1,13	1,14	1,13

*Note: * - data for 9 months of 2022.*

Source: calculated according to data [22, 23]

The dynamics of liquidity coefficients – the basis of the banking system's activity, which reflects its ability to transform assets into liquid form and settle its obligations – shows the ability of successful anti-crisis regulation. Excess liquidity is observed in the banks of Ukraine, which is demonstrated by the dynamics of the coefficients of general and short-term liquidity, their growth and exceeding the optimally recommended values.

Investments of banks of Ukraine characterize the financial and real investment activity of the banking sector and reflect the possibility of receiving income in the form of interest, dividends, income from resale as a result of investments. It should be noted that the coefficient of investment activity increased by 0.29%, and the coefficient of the ratio of investments in securities to total assets - by 8.12%. The problematic and threatening nature of the credit and investment activity of banks is reflected in the ratio of credit coverage by stable sources of financing, which has a tendency to decrease by 2.03% and signals the imbalance of credit and deposit activity both in terms and amounts.

In order to evaluate the integral indicator of the financial stability of Ukrainian banks based on their problematic nature and crisis state, it is suggested to determine not only the aggregated indicators for the 6 components of the assessment of the level of the crisis state, but also to determine the weighted values of the indicators taking into account their weighting values [24, diss.]. On the basis of a comprehensive analysis and assessment of the crisis situation of the banks of Ukraine in terms of its individual components, an integral indicator is defined as the sum of the

products of the integral indicators of each of its components and the weighting factors that determine the degree of contribution of specific indicators to the integral index (Fig. 2).

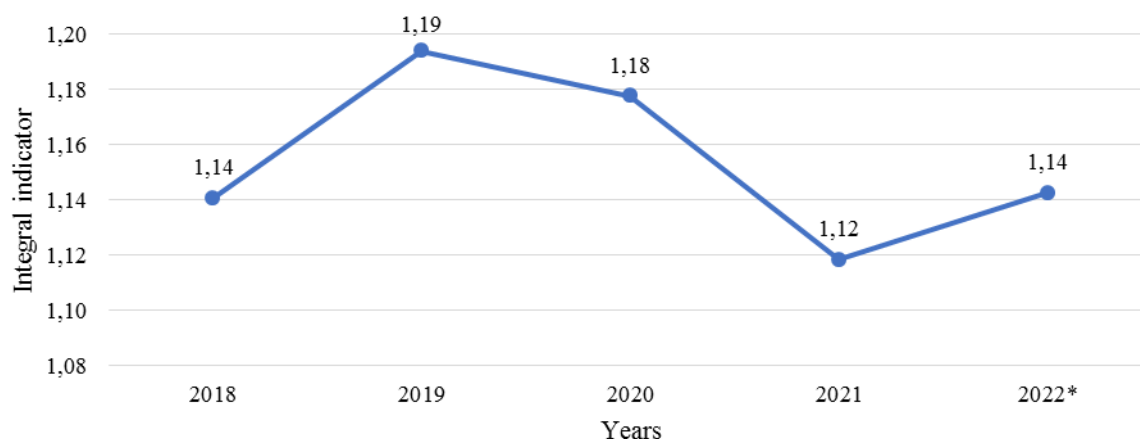


Fig. 2. Dynamics of the integral indicator of assessing the financial stability of Ukrainian banks in 2018-2022.

*Note: * - data for 9 months of 2022.*

Source: calculated by the author

The estimated values of the integral indicator of the financial stability of Ukrainian banks indicate a deterioration of its financial stability in 2019 and 2022 to the level of 1.19 and 1.14, accordingly. However, in 2021 there was a significant decrease in the indicator to 1.12. The performed calculations allow us to notice unstable trends in the development of the domestic banking system, a slight increase of problematic level, but it is a satisfactory level of crisis phenomena throughout the analyzed period. The indicator reached its peak values at the end of 2019, that is, during the period of the spread of COVID-19 and applying of quarantine restrictions, and in 2022, when the full invasion of Russia into the territory of Ukraine took place.

In general, the integral indicator of the crisis state of Ukrainian banks, the value of which was obtained based on the results of analytical calculations, signals problematic aspects of maintaining the financial stability of the banking system, which allows to distinguish real and potential threats and dangers at the macro and micro levels and to develop effective recommendations for anti-crisis regulation in the banking sector.

At the phase of developing of crisis phenomena, the financial stress index (FSI), calculated by the National Bank of Ukraine, is used to assess only current financial stability in the financial sector. based on 20 indicators grouped by five sub-indexes: sub-index of the banking sector, household behavior, corporate securities, government securities, foreign exchange market. Each sub-index is assigned an initial weight according to the amount and impact on the country's financial sector.

Aggregation of sub-indices takes place with the help of econometric modeling (models of multivariate generalized autoregressive conditional heteroskedasticity, multivariate GARCH - generalized autoregressive conditional heteroskedasticity). The peculiarity of the method is to take into account changes in relationships between indicators (sub-indices) over time. Usually, the correlation between sub-indices increases during crisis events. The higher it is, the better the probability that the stress will spread to the entire financial sector, therefore, it will have a systemic nature [25].

Favorable and adverse financial and economic, social and political events affecting the development of the financial market are almost instantly reflected in the value of the IFS. The NBU has been calculating the IFS since 2008. The dynamics of the indicator presented in fig. 3 clearly demonstrates that financial stress increases/decreases in the financial market under the influence of the realization of certain events (adverse/favorable influence factors), which are points of increase/decrease of the IFS.



Fig. 3. Financial stress index for Ukraine for 2008-2022

Source: [25]

Analyzing the IFS for Ukraine, it needs to notice that the indicator reached its peak value during the financial crisis of 2008-2009. The highest value of the IFS (0.64) was recorded on 03/03/2009. The next significant increase of the index took place in 2015 after a series of events that had both financial and military-political contexts - the escalating of the military conflict in the East of Ukraine and the declaration JSC "Delta Bank" insolvent (March 2, 2015) [26]. That is why the IFS on 03/18/2015 rose to a value of 0.56. The value of the financial stress index for Ukraine for the period from 2017 to the beginning of 2022 was in the range of 0.10 - 0.15. However, at the beginning of March 2022, the value of the IFS reacted almost instantly to the full invasion of Russia on the territory of Ukraine. The indicator reached a local peak of 0.8 on 03/04/2022, but gradually decreased to 0.23 on 09/19/2022.

The contribution of each of the above-mentioned sub-indices to the value of the IFS is shown in fig.

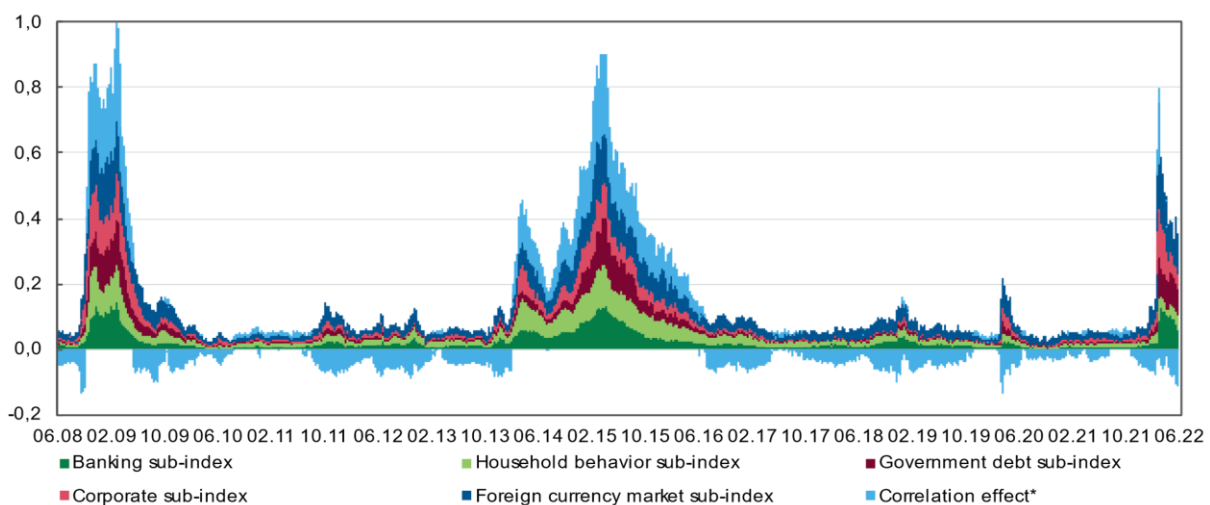


Fig. 4. The influence of sub-indices on the financial stress index for Ukraine

Source: [25]

Analytical display in form of table makes it possible to accurately display the contribution of each sub-index to the overall IFS during the periods of the local peak of the indicator (Table 7).

The sub-index of the banking sector had the most negative impact on the growth of the IFS for Ukraine only in 2009. In 2015 and 2022, the sub-index of the foreign exchange market and the sub-index of the government securities sector had the greatest impact on the increase of the indicator, accordingly.

Table 7

The influence of sub-indexes on the financial stress index for Ukraine

Date	Banking sub-index	Household behavior sub-index	Government debt sub-index	Corporate sub-index	Foreign currency market sub-index	Correlation effect
03.03.2009	0,17162	0,12473	0,14750	0,15179	0,16210	0,22225
18.03.2015	0,13803	0,12870	0,15200	0,09819	0,18811	0,19504
04.03.2022	0,14909	0,06191	0,17899	0,17625	0,16350	0,07062

Source: [25]

The analyzed data on the IFS make it possible to note that the indicators of the banking sector, which are the basis for the calculation of this subindex (change in overnight interbank rate, liquidity of Eurobonds of large domestic banks, liquidity of banks, trust of individuals in banks [27, p. 9-10]), during the periods of the peak value of the indicator in 2015 and 2022 were not significant in shaping the dynamics of the general CPI. Therefore, it can be argued that the banking sector of Ukraine has become more stable and capable of more stable reaction to shocks.

The IFS shows only the current state of affairs, but does not indicate future risks. The financial stress index enables:

- to measure the stress level of the financial system;
- to assess the depth and duration of the period of instability of financial markets, as well as to compare it with the level of stress in past crises;
- to evaluate (along with other indicators) the effectiveness of anti-crisis measures;
- to determine the nature of shocks of the financial system and its individual components - systemic or episodic.

Fig. 3 shows the key events that affected the financial market of Ukraine. In particular, shortly after the bankruptcy of Lehman Brothers, it was recorded the peak value of the IFS. The next rapid growth of the IFS during the crisis of 2014-2015, although at a lower level, but significantly longer in time. Only after the start of negotiations on the restructuring of the public debt in 2015, the level of stress begin to decrease significantly. After the quarantine was announced in March 2020, the index temporarily increased, but already at the beginning of June it decreased to the level observed before the start of the COVID-19 pandemic. The invasion of Russia in 2022 caused a immediate increase of the index value. All its components grew, which indicates the systemic nature of stress for the financial sector. At first, the high values of the IFS were caused by the growth of returns on the securities market, the volatility of the exchange rate on the cash foreign exchange market, the high level of currency interventions and the refinancing of banks by the National Bank to maintain their liquidity. Only the level of the household behavior sub-index remained relatively low due to public confidence in the banking system and there was no outflow of deposits, which restrained the

growth of the general index. Over time, the values of most sub-indexes decreased. However, already in July, in anticipation of the restructuring of the state debt, the value of state and corporate securities raised quickly. Interest rates on household deposits also increased, volatility in the cash foreign exchange market remained. Therefore, the IFS raised to the March level.

We emphasize once again that the disadvantage of the IFS is that it shows only the current situation, it characterizes the stress level of the financial market when a certain shock has already occurred. This indicator is "turned" into the past, but it allows you to assess the effectiveness of anti-crisis measures during past crises, to see whether the stress on the financial market and its individual segments is systemic or episodic, and form an understanding of the level of stress compared to previous crises. In the context of monitoring the financial stability of domestic banks as a component of the anti-crisis regulation mechanism, it is worth, first of all, to analyze the dynamics of the main indicators of the financial stability of the banking sector, which is maintained within the framework of the Macroprudential Policy Strategy [28] and aggregates various methodological approaches to assessment. The direction of this policy is primarily related to the limitation of systemic risks in order to prevent crises or reduce losses from them. The goal of macroprudential policy is to maintain the financial stability of the entire financial system.

From this aspect the assessment financial stability consists of assessing, identifying and minimizing systemic risks. The assessment of the financial stability of banks within the framework of macroprudential analysis [29] is done on the basis of the calculation of the main and additional indicators of the financial stability of deposit corporations developed by the International Monetary Fund (IMF). The most common macroprudential instruments in international practice are listed in the table. 8.

The main areas of analysis are: capital adequacy, asset quality, profit and profitability, liquidity, sensitivity to market risk.

Table 8

The main indicators of the financial stability of Ukrainian banks in 2018-2022 (on the end of the period)

The name of the indicator	2018	2019	2020	2021	2022*
I1 – Ratio of regulatory capital to risk-weighted assets	16,18	19,66	21,98	18,01	18,85
I2 – Ratio of 1 st level regulatory capital to risk-weighted assets	10,52	13,50	15,67	11,99	12,75
I3 – Ratio of non-performing loans excluding reserves to capital	60,20	25,28	21,91	11,40	24,21
I4 – Ratio of non-performing loans to total gross loans	52,85	48,36	41,00	30,02	33,63
I5 – Ratio of loans by economic sector to total gross loans (residents)	93,47	92,83	96,08	96,20	96,32
I6 – Rate of return on assets	1,60	4,70	2,77	4,46	0,73
I7 – Rate of return on capital	14,61	37,55	21,68	37,86	6,56
I8 – Ratio of interest margin to gross income	52,02	47,39	45,00	53,11	50,52
I9 – Ratio of non-interest expenses to gross income	61,92	55,58	60,79	61,22	47,70
I10 – Ratio of liquid assets to total assets	51,14	72,28	69,10	69,24	74,02
I11 – Ratio of liquid assets to short-term liabilities	93,52	94,35	86,82	89,13	88,80
I12 – Ratio of net open position in foreign currency to capital	46,99	47,44	32,85	30,67	43,70

Note: * - data for 9 months of 2022.

Source: [23]

The dynamics of indicators I1–I4 listed in table. 8, confirms the conclusions made earlier regarding the gradual deterioration of the capital stability of Ukrainian banks and the quality of their loan portfolios from 2021. The growth of the I5 indicator in 2022 indicates a decrease in the part of loans granted to non-residents, which causes a decreasing the dependence of banks on the influence of the global economy.

Indicators I6 and I7 show that in 2019-2021 domestic banks in general began to generate significant profits, which created the conditions for strengthening their financial stability. But in 2022, the profitability of the banking system decreased significantly, which is reflected in the reduction of the rate of return on assets by 83.63% and the rate of return on capital by 82.67% in the 3 quarters of 2022.

The I8 indicator, despite certain fluctuations over a certain period, changes in a positive direction, as it confirms the diversification of the income base of Ukrainian banks. The trend of the change in the I9 indicator is also positive and indicates the strengthening of the savings regime in banks on non-interest expenses, which is reflected in the growth of their profitability, except for 2022. Also, as a sign of the positive impact on the financial stability of Ukrainian banks, it is necessary to note the fact of the sensitivity of domestic banks to currency risk during 2018-2021 (indicator I12).

During the period of 2018-2022, liquidity indicators (I10 and I11) significantly exceeded the normative values, which indicates not only the ability of banks to pay off their obligations on time, but also significant unused opportunities for investments in profitable assets, banks' lack of desire to take additional risks.

It is also worth to mention that starting from September 2, 2019, liquidity standards N4 and N5 have been removed from the list of regulatory indicators and are not calculated by banks. Instead, banks are required to calculate the LCR liquidity coverage ratio (LCR_v, LCR_r) on a daily basis, which more effectively reflects the level of banks' financial resilience to short-term liquidity shocks. Its normal values are set as follows: for LCR_v - at least 80%; for LCR_r - at least 50%. Today, the median LCR liquidity coverage ratio (which in peacetime must be at least 100%) is 304% [30]. This means a sufficient reserve of funds for payments to depositors and conducting monetary transactions of clients, a sufficient level of resistance to short-term liquidity shocks and contributes to strengthening the level of financial stability of domestic banks.

At the post-crisis stage of assessing the financial stability of banks, stress testing is used to determine the direction of rehabilitation regulation. Assessment of the financial stability of banks based on stress testing helps to clarify the impact of shocks on various indicators of banking activity. In addition, stress tests are a tool that allows you to quantitatively measure possible changes in the bank's balance sheet, the structure of its costs, potential losses on loans and deposits. All this enables the regulator to estimate the possible amount of losses of the entire banking sector and determine the level of reserves that banks need to accumulate in order to overcome negative shocks in the economy the most painlessly. Bank management does stress testing, first of all, for better understanding the most vulnerable aspects of banks' activities today, as well as to optimally change indicators in order to increase the stability of the entire sector in general.

There are various types of stress tests and methodical approaches to their implementation [31-35]. A generalized description of the main analysis methods used during stress testing is presented in table 9.

Table 9

Methods of analysis used during stress-testing of banks

Analysis method	Characteristics of the method
Sensitivity analysis	Identification of risks and likely reactions of banks to shock situations (changes of the exchange rate, asset prices, interest rates)
Scenario analysis	Checking the stability of banks for possible scenarios of economic development
Analysis of "contagion"	Assessment of the transmission of shocks transmitted from an individual bank to the whole banking sector

Source: compiled on the basis of [33, 35, p. 4]

One-factor stress tests (sensitivity analysis) make it possible to form an idea about the amount of losses or profits that can hypothetically occur in the bank if the shock situation develops according to the established assumption. The advantage is the simplicity and speed of calculations and also the possibility of analyzing the impact of a separate factor on the indicators of the bank's activity (for example, capital), which allows quick management decisions.

The advantage of multifactor stress tests (scenario analysis) is the flexible formation of possible events, since the change of several risk factors at the same time is studied. However, there can be a situation when it is practically impossible to determine the probability of an event that has not occurred before. The disadvantage is a sufficiently complex calculation algorithm and the risk of unreliable interpretation of the influence of any factor, which can lead to an incorrect interpretation of the scenario implementation. Multifactor stress tests assume the need to choose risk aggregation [34]: summing the risks, sustainable diversification method, variance-covariance approach, copula method, full simulation method. Scientific approaches to the formation of methodological base for stress testing of bank market risks, based on aggregation conditions, made it possible to identify a number of functional advantages and disadvantages, to approve the mechanism of their application, combination and integration into the system of assessing the financial stability of banks.

In 2022, the National Bank of Ukraine planned to conduct stress testing of 22 banks that, according to the results of the last two assessments, had more than required levels of capital adequacy or entered the list for the first time. However, due to the war, the regulator canceled the stress testing of banks, as it did in 2020 due to the crisis caused by the spreading of COVID-19.

In 2021, 30 banks were doing stress testing, which as of the beginning of 2021 collectively owned 93% of the assets of the banking system. It found capital problems in 20 of them. Ten banks successfully passed stress tests. Most of them are with foreign capital, and also the state-owned PrivatBank. Also, according to the results of the stress tests, PUMB and A-Bank did not need additional capitalization.

Based on the results of the sustainability assessment, the required level of regulatory capital adequacy (N2) and core capital adequacy standard (N3) was determined for banks. The necessary level of capital adequacy standard is calculated in such a way as to ensure that banks meet the minimum requirements of N2 and N3 under the base scenario (10% and 7%, accordingly) and the reduced requirements under the specified standards under the unfavorable scenario (5% and 3.5%, accordingly) on the entire three-year forecast horizon (up to and including 2023).

The results of the evaluation under the base and adverse scenarios are not forecasts of financial indicators. The scenarios are designed to identify the possible impact of the main risks on the bank's activities in its current state. Stress test results should be interpreted only in the context of

key model assumptions. First, the banks' balance sheet was assumed to be static, so it was affected only by changes in the quality of assets and the exchange rate. Secondly, the capitalization of current profits throughout the entire forecast period was assumed.

The need of capital for banks, for which capital risks have been identified, is mostly determined by the following factors:

- the high cost and short term of funding, which creates a significant interest rate risk for banks in adverse conditions;
- significant administrative costs;
- keeping an excessive amount of non-core assets on the balance sheet. According to the established rules, the basic capital of banks is gradually reduced by the value of non-core assets;
- the unsatisfactory financial state of some large borrowers.

During the stress testing conducted by the National Bank of Ukraine, all the shortcomings of future periods, including the beginning of military operations on the territory of Ukraine, could not be taken into account, therefore the results of the stress testing were much more optimistic than the results of the banks' actual activity. This was facilitated by unpredictable macroeconomic scenarios, as well as taking into account the previous results of supervision and more successful risk management in the banks' activities. This especially applies to credit risk.

A additional method of assessing the financial stability of banks at the phase of post-crisis regulation can be a rating assessment. This non-parametric method of assessing the financial stability of banks includes assigning a certain rating to a banking institution by assigning the bank to the appropriate rating class or determining its place among other banks. The higher the ratings of the bank, more stable it is. The rating can be indicated by a number (for example, as in CAMELSO), a combination of letters, numbers, symbols (Fitch Ratings), a position in the ranking line (for example: 1st place by the size of banking sector assets). There are three main methods of building bank ratings (table 10).

It should be noted that during creating ratings, agencies usually combine different methods. Methods of assessing financial stability, which are the basis of ratings, can be invented by individual authors, independent rating agencies (international and domestic) and banking supervision institutions.

Table 10

Basic methods of building bank ratings

Name of the method	Characteristic
Numbering method	Assigning a bank a certain number in the rating based on the construction of a ranking range, where the values of certain indicators of the bank's financial condition are evaluated
Point method	The study of the bank's financial state is carried out by assigning it points for each of the evaluation indicators; the combined score makes it possible to determine whether the bank belongs to one or another group of banks
The index method	Based on the calculation of the index of each of the estimated indicators of the bank's financial condition; after calculating the indices for individual indicators, proceed to the determination of the combined indexes

Source: compiled by the author based on [36, p. 65-66]

The results of our comparative analysis of the most well-known methods of analyzing the financial stability of banks (in particular, rating) are given in table. 11.

Table 11

Comparative analysis of methods for assessing the financial stability of banks

Methodology	Information support	Quantitative indicators	Qualitative indicators	Expert assessment	Rating
1	2	3	4	5	6
Rating models of assessment					
CAMELSO	The bank's public reports, the bank's data from the mass media, the results of on-site inspections	+	+	+	+
SREP	The bank's public reports, the result of on-site inspections	+	+	+	+
PATROL	The bank's public reports, the result of on-site inspections	+	–	–	+
ORAP	The bank's public reports, the result of on-site inspections	+	+	+	+
Statistical models					
SAABA	The bank's public reports	+	–	–	–
FIMS	The bank's public reports	+	–	–	–
Comprehensive assessments of banking risk					
RATE	The bank's public reports, the result of on-site inspections	+	+	+	–
RAST	The bank's public reports, the result of on-site inspections	+	+	+	–
Coefficient models					
BAKIS	The bank's public reports	+	–	–	–
Author's methods, rating agencies' methods					
Methodology of RA "Credit-Rating"	The bank's public reports, internal bank data at the agency's request	+	+	+	+
Methodology of NRA "Rurik"	The bank's public reports, internal bank data at the agency's request	+	+	+	+
Methodology of RA "Expert-Rating"	The bank's public reports, internal bank data at the agency's request, public databases	+	+	+	+
Methodology of the Ministry of Finance portal	The bank's public reports	+	–	+	+
Kromonov's method	The bank's public reports	+	–	+	+

Source: systematized by the author based on [36-39]

Evaluating the rating of banks held by the NBU, it is worth noting that the regulator has currently integrated the CAMELSO rating system into the SREP (Supervisory Review and Evaluation Process), which is based on risk-oriented and forward-looking approaches, where the main areas of assessment are business models, corporate governance and risk management, capital, liquidity and funding risks.

The rating of Ukrainian banks for September 2022 was compiled basing on the official statistics of Ukrainian banks, provided by the NBU with the participation of banking market experts, looks like this:

1. Raiffeisen Bank Aval (Raiffeisen Bank, Austria).
2. Credit Agricole Bank (Credit Agricole, France).
3. Ukrsibbank (BNP Paribas Group, France).

4. PrivatBank (state).
5. Oschadbank (state).
6. Ukreximbank (state).
7. Kredobank (PKO Bank Polska, Poland).
8. Ukgasbank (state).
9. OTP Bank (OTP Bank, Hungary).
10. ProCredit Bank (ProCredit Bank, Germany).
11. CITIbank Ukraine (Citigroup, USA).
12. ING Bank Ukraine (ING Group, Netherlands).
13. Pravex Bank (Intesa Sanpaolo, Italy).
14. PUIB (SKM Finance / Rinat Akhmetov, Ukraine).
15. Universal Bank (Bailican, Cyprus / Serhiy Tihipko, Ukraine).

During the compiling the rating of the most stable Ukrainian banks, it was taken into account the bank's ability to return deposits without delay if it has financial problems or problems with repaying loans and increasing customer debt, as well as the level of support from shareholders and the state.

It should be noted that the banking sector of Ukraine passed the first months of 2022 with medium losses thanks to the immediate actions of the National Bank of Ukraine and commercial banks to maintain the activity of financial institutions without interruption using the tools of proactive, reactive and rehabilitation regulation.

In general, the mechanism of anti-crisis regulation of the banking system should take into account and combine a set of components that allows to comprehensively develop, implement and apply programs of anti-crisis regulation of the financial activities of banks based on integrated indicators for the identification of internal and external threats, assessment of crisis phenomena and situations, crisis depth and the applying of preventive, reactive and rehabilitation measures of anti-crisis regulation at the pre-crisis, crisis and post-crisis phases, accordingly.

In this work, we suggest that one of the elements of the anti-crisis regulation mechanism of the banking system – the assessment of the financial stability of banks – should be done with the help of an analytical toolkit based on coefficients, which include 6 groups of indicators, systematized by subject, and allow identifying real and potential crisis phenomena and threats. The methodical approach, which is based on a comprehensive analysis of indicators of the financial stability of banks with the identification of real and potential crisis phenomena and threats, can be used for an integral assessment of the level of the crisis state of the banking system and involves the calculation of an integral indicator of the assessment of the crisis state of banks and the determination of the scale of gradation of the levels of the crisis state of banks, according to the type and depth of the crisis.

Estimated values of the integral indicator of the crisis state of Ukrainian banks shows its growth in 2019 and 2022. The conducted calculations of the indicator allow us to ascertain unstable trends in the development of the domestic banking system, increasing level of problems and crisis phenomena.

In addition to the conducted analysis and assessment of the financial stability of Ukrainian banks in the context of identifying crisis phenomena and threats for 2018-2022, the financial stress index was studied, which is used specifically to assess the current financial stability at the phase of the developing of crisis phenomena to determine preventive measures of anti-crisis regulation.

Domestic banks have significantly increased their resistance to crisis phenomena over the past 5 years, which was reflected in the reduction of their aggregated impact on the financial stress index.

In the context of monitoring the financial stability of banks at the next crisis phase, it is proposed to analyze the dynamics of the main indicators of the financial stability of the banking sector based on the calculation of the main and additional indicators of the financial stability of deposit corporations developed by the International Monetary Fund (IMF). The dynamics of the indicators confirm the conclusions made earlier regarding the need to use tools of reactive regulation of the banking system. It is observed a gradual deterioration of the capital stability of Ukrainian banks and the quality of their loan portfolios, and in 2022 there is a significant reduction in the profitability of the banking system and an increase in the sensitivity of domestic banks to currency risk.

At the post-crisis phase of regulation of the banking system, stress testing should be used to assess the financial stability of banks and determine the trend of rehabilitation regulation. Assessment of the financial stability of banks on the basis of stress testing helps to clarify the impact of shocks on various indicators of banking activity and to identify weak points and directions for their decreasing in order to ensure efficient operation without interruption of the banking system. Due to stress testing by the National Bank in previous years, the banking system of Ukraine is stable and successfully copes with crises triggered by the COVID-19 pandemic and the military operations. This statement is also confirmed by the rating of domestic banks for 2022, that are confidently overcoming the risks caused by the war.

Therefore, the important moment in the formation of the mechanism of anti-crisis regulation of the banking system is the definition and reasoning of the sequence of actions and decisions to identify, evaluate and apply measures to overcome the crisis state based on a comprehensive assessment of the financial stability of banks, argumentation of the type and depth of the crisis, the selection of appropriate methods and tools of anti-crisis regulation, assessment of the effectiveness of anti-crisis measures, their monitoring and control over the making of appropriate management decisions.

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ENHANCING FINANCIAL INCLUSION IN UKRAINE ON THE BASE OF EUROPEAN EXPERIENCE

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Ensuring the financial inclusion of the country (the availability of financial services for the population, primarily due to the spread of information technologies) creates new opportunities for the economy and the state as a whole, because it stimulates economic growth by expanding the opportunities to attract savings of individuals and invest these funds in the development of the economy, increases the level of well-being of the population by developing people's entrepreneurial abilities, the ability to judiciously plan personal financial decisions, including drawing up one's own budget, controlling financial accounts, savings, loans, one's own debt, etc. Currently, 44 countries of the world have approved the strategy of financial literacy, and in 27 countries this document is at the stage of development. Accelerated provision of financial inclusion is also defined as one of the strategic goals of the NBU.

In the conditions of the coronavirus, the state of war, which caused people to self-isolate in order to protect themselves from the coronavirus infection and the dangers to life as a result of the war, there is a clear demonstration of the relevance and necessity of solving the problems of accessibility of the population in all populated areas of Ukraine to basic financial services, the formation of their financial literacy and the formation of trust in financial intermediaries, which forms the financial inclusion of society in general. Today, financial inclusion is equal access and use of financial products and services that are: affordable; meet the needs of households and enterprises; accessible to all segments of society regardless of income and place of residence; are provided by representatives of the financial sector responsibly and ecologically for all participants in the process [13, p.10]. OECD/INFE defines financial inclusion as the process of promoting affordable, timely and comprehensive access to a wide range of financial products and services, spreading their use among all layers of society through the implementation of existing and innovative approaches, including financial awareness and education, with the aim of promoting both financial well-being and economic and social inclusion.

The last five years of development of both the global financial system and national ones are closely related to blockchain, cryptocurrencies and fintech. All banks and other financial structures, as well as investment instruments, are built inefficiently. And in the next 10-20 years, they will simply collapse under the onslaught of new technologies. Blockchain and fintech touch everyone and everything, they are fundamental. In addition, these are areas where countries such as Great Britain, the United States, and China are not competitors to the "partisan" countries: Latvia, Lithuania, Estonia, Singapore, Luxembourg, which have a real chance to become the new Switzerland. All because "small and fast" here achieves much more success than "big and heavyweight" [16]. So it becomes obvious that today, the problems related to the formation of financial inclusion, using modern information and communication technologies for the development of the financial system of the country as a whole, come to the fore.

Currently, the problem of financial inclusion around the world is quite relevant and is being studied by international financial organizations and scientists. Scientific works and practical researches and developments of such well-known scientists Anufrieva K., Geitsa V., Hrytsenko A., Kraus N., Leonenko P. are valuable researches in the scientific sense of the problems of the formation of financial inclusion, S. Mishchenko, O. Manzhury, S. Naumenkova, P. Nikiforova, V. Osetskogo, G. Pochenchuk, O. Shevchenko, Shklyara A., Shtepy O. Thus, the scientific publication of Ukrainian researchers Naumenkova S. and Mishchenko S. deserves attention [11], who, based on an analysis of the economic situation in Ukraine, managed to determine that its deterioration

increases the share of the "financially excluded" population, makes it difficult for citizens to access digital financial services in the most convenient form for them.

For the first time, the concept of financial inclusion was defined and discussed at the Global Partnership for Financial Inclusion (GPFI) conference by such institutions as the Basel Committee on Banking Supervision (BCBS), the Committee on Payment and Settlement Systems (CPSS), International Anti-Money Laundering Group (FATF), International Association of Deposit Insurers (IADI) and International Association of Insurance Supervisors (IAIS) [11]. According to them, financial inclusion means a state where working-age adults have effective access to credit, savings, payments and insurance from formal service providers. At the same time, effective access involves convenient and affordable provision of services for the customer on the conditions of sustainability for the provider (sustainable services), as a result of which customers outside the formal financial system (one whose activities are regulated by legislation) begin to use formal financial services instead of existing ones unofficial options [17].

The National Bank of Ukraine understands financial inclusion to be the creation of conditions for attracting all segments of the population and businesses to use a variety of financial services, which are available in terms of infrastructure and price, are officially regulated and meet the needs of the population, with the aim of stimulating the economic growth of the country and reducing social inequality [12, p.107].

Revealing the meaning of the concept of financial inclusion, it is advisable to focus attention on such important points:

Firstly, it is about the accessibility of the adult population of the country (over the age of 15) to basic financial services, which, according to the approaches of the World Bank, include such things as: money transfers and payments, savings services, lending services, insurance services.

Secondly, financial inclusion is considered in terms of increasing the part of the population "included" in the system of official financial services. Possible methods of unofficial or unregulated financial services are not considered.

Third, "financial inclusion" and "access to finance" are not identical concepts. Limited access to financial services is not necessarily due to lack of access. Some citizens may have access to the services of banks and other financial institutions, but refuse to receive them for religious, cultural and other reasons - this is a manifestation of the voluntary "exclusion" of a person from the financial service system. In other cases, limited access to financial services may be caused by the presence of various barriers, namely: informational, technological, price, contractual. A separate group includes barriers that complicate access and are characterized by coercive restrictions on access to financial services - these are military operations, natural disasters, insufficient income, limited product range [5, p.129].

The insufficient level of financial inclusion is mainly a problem of developing economies, but developed countries also face similar challenges when it comes to the poorest or marginalized sections of the population, migrants (including illegal ones), refugees, etc. According to the World Bank's 2017 global survey, there are approximately 1.7 billion adults worldwide who do not have accounts with any financial institutions or mobile financial providers, up from 2014. 2 billion people. Almost 60% of this number are women. Persons not covered by basic financial services are concentrated in the poorest segment of the population: in the first quintile of households by income level, 27% of them are, while in the richest fifth quintile - two times less. Financial exclusion (that is, exclusion when subjects for some reason cannot get the financial services they need through official channels ("formal financial system") and are forced to turn to unregulated or even illegal providers) is disproportionately young. Young people between the ages of 15 and 24 make up a third of people who do not have any accounts. In general, financial inclusion rates range from 100% (Denmark, Finland, Netherlands, Norway, Sweden) to 10-15% (South Sudan, Central African Republic, Afghanistan, Niger) [2].

Expanding financial inclusion is one of the main directions of the Strategy for the Development of the Financial Sector of Ukraine until 2025 (hereinafter referred to as the Strategy) and its further reform in accordance with leading international practices, as well as the

implementation of measures provided for in the Association Agreement between Ukraine and the EU. For this purpose, standards of market behavior of financial institutions and disclosure of information about financial products will be implemented, targeted programs will be activated to increase the financial literacy of the population, as well as the protection of consumer rights will be strengthened, incentives will be created for the development of payment infrastructure for non-cash operations, the deposit guarantee system will be expanded and improved, etc. Innovations in the financial sector will include a wide range of actions, including: development of the BankID remote identification system, creation of a platform for crowdfunding and venture capital, as well as regulatory "sandboxes" like sandbox, introduction of new technologies for payments and transfers, expansion of access of financial market participants to public registries, development of big data, blockchain, cloud technologies, etc.

Thus, the Strategy provides for reforms in all segments of the financial sector: in the banking market, in the sector of non-banking financial institutions, in the capital markets. Its implementation will make it possible to create a transparent, competitive, stable and high-tech financial sector in five years. Under such conditions, it will become a driver of sustainable and inclusive development of the national economy and contribute to the improvement of citizens' well-being thanks to the effective accumulation and redistribution of financial resources in the economy [1].

Financial inclusion has three components:

- 1) availability of financial services – willingness and ability to use such services;
- 2) understanding - the consumer's ability to choose a financial service knowingly, with a full understanding of the benefits and risks, guided by the basics of financial literacy;
- 3) consumer confidence in financial market intermediaries that provide services, which must be guaranteed and ensured by a third party (by regulatory authorities).

So, the main prerequisites for financial inclusion are::

- the level of financial literacy of the population;
- public trust in the state and financial market institutions;
- access to financial technologies;
- regulatory environment (legislative protection of the rights of creditors and consumers, protection of property rights). Let's consider them in more detail.

It should also be noted that Ukraine took the first steps in the development of payment and credit services, financial literacy and financial inclusion back in 1996 by launching joint projects with international card payment systems to issue payment cards, implementation of salary and pension projects, development of the network for accepting non-cash payments and adoption of relevant legislative and regulatory acts in 1999-2013. Unfortunately, during this period, a system characterized by the presence of quasi-market conditions (monopolization, significant concentration, overpowering administration) was created, which, including led to the exclusion of a significant number of the adult population from the consumption of financial services. It is widely known about 5 million citizens who continue to receive pensions in cash and, accordingly, are excluded from financial digital services, do not use digital payment tools (accounts, internet banking, internet commerce, cashless payment of utilities, etc.).

In the period 2014-2018, the intensive introduction of innovative payment instruments (digital cards, mobile wallets, contactless payments, etc.) and services in Ukraine took place in isolated cases at the expense of significant own investments of market participants, as well as as a result of the implementation of projects by payment systems and international companies MasterCard, Visa Checkout, G-PAY, Apple Pay.

The factors that limited competition in the previous period were strengthened by the nationalization of the largest private bank in the country, the withdrawal from the market of 80 banks (more than 45% of the total number) and the corresponding super concentration of the banking market, inhibition of the implementation of principles open banking, the lack of an opportunity to enter the market of payment and financial services of solvent and ready to invest in digital technologies of non-bank financial and payment institutions.

"Salary and pension slavery" with an average term of contractual relations from 12 to 30 (max) months does not contribute to the inclination of clients to financial inclusion, financial planning, and the realization of long-term goals. Salary and pension clients (from 5 to 10 million people) are poorly treated, poorly understood and do not sufficiently use both basic and other financial services, such as non-cash payments, savings, credit and insurance, investing in education or health care, risk management [6].

The current state of affairs in the field of regulation of the payment services market does not provide an opportunity, in accordance with the G-20 principles for the implementation of financial inclusion, to ensure the possibility of piloting the necessary new innovative channels, products and services, as well as business models. The reason is the need to constantly and indisputably comply with all regulatory requirements, which are available in large numbers in non-special legal acts of banking regulation, which complicates innovation processes and the development of digital payments and the digital economy [8].

As part of the USAID project "Transformation of the Financial Sector" together with the National Bank of Ukraine, a national statistical survey of the population on financial literacy and financial inclusion in Ukraine was conducted. According to the OECD methodology, as indicated in table 1, in 2021 the index of financial literacy of Ukrainians amounted to 12,3 points (58% of the total possible value - 21 points). Comparing the data for 2018, in three years the growth of financial literacy of citizens amounted to 6% (from 11,6 to 12,3 points), which represents a positive increase. However, the average growth rate of financial literacy in other countries compared in the OECD report was only 2,4%. So, although the level of financial literacy of Ukrainians is quite low, according to this trend, Ukraine is catching up with other more developed countries in this area. If we examine this index in more detail in terms of the age of the surveyed citizens, citizens over 60 years of age received the lowest financial literacy index (11,6 points). Despite this, the financial literacy of the older group of Ukrainians is higher than in such countries as Georgia, Italy, Montenegro, Romania, and Malta. Young people aged 18-29 received 12 points in terms of financial literacy and, compared to other countries, it is close to the Czech Republic and leaves behind Italy, Bulgaria, Croatia, Montenegro, Malta and Romania. Grouping the population by place of residence, differences in the financial literacy of residents of villages and cities are observed - respondents from villages received 11,8 points, and residents of cities – 12,6 points, which is a significant gap [7].

Analysing the index of financial well-being of Ukrainians, according to the OECD methodology, Ukraine received 8,3 points (42% of the total possible value - 20 points). This shows that the surveyed population is quite insecure about their finances and believe that they are not able to control their own long-term financial plans. In other compared countries, the average score reaches 9,3 points, namely 47%. Georgia – 6,9 points, North Macedonia – 7,9 points and Moldova – 8,2 points received lower indicators than Ukraine [7].

There are differences in the values of the Index of Ukraine and its components in comparison with other countries (tab. 1).

- the score of Ukraine for financial knowledge is slightly lower than the scores of the comparison countries (4,3 points) and the average value of the OECD countries, but at the same time an extremely positive trend can be observed - a growth of 7,5% compared to a growth of 4,4% for the comparison countries and 0,0% for the adjusted sample of OECD countries;

- the score of Ukraine for financial behavior is 5,5 points and is higher than that of the comparison countries and almost at the same level as the average value according to the adjusted sample of OECD countries;

- the score of Ukraine on the attitude to financial issues is 2,5 points and is lower than the scores of the comparison countries and the average value according to the adjusted sample of OECD countries. However, it is worth noting that, unlike these countries, Ukraine showed a growth of 6% in less than 3 years, while in comparison countries there was a drop of 3,3%, and in OECD countries - by 6,5% [9, p.173].

Table 1

Financial Literacy Index: Comparison of Countries by Components

Component	Ukraine, 2021 (point)	Ukraine, 2018 (point)	Change, %	Average by country comparison, 2020 (point)	Average by country comparison, 2016 (point)	Change, %	Average for a sample of OECD countries, 2020* (point)	Average for a sample of OECD countries, 2016* (point)	Change, %
Cognition (i3 7)	4,3	4	7,5	4,7	4,5	4,4	4,7	4,7	0
Behavior (i3 9)	5,5	5,2	5,8	5,1	4,8	6,3	5,4	5,2	3,9
Attitude (i3 5)	2,5	2,4	4,2	2,9	3	-3,3	2,9	3,1	-6,5
Total financial literacy score (out of 21)	12,3	11,6	6,0	12,7	12,4	2,4	13	13	0
General index of financial literacy (in percentage)	58 %	55 %	5,5	60 %	59 %	1,7	62 %	62 %	0

* The average for a sample of OECD countries does not coincide with the indicators from the OECD reports for 2016 and 2020, since the data were recalculated

But it is worth noting that the general index of financial literacy in Ukraine did not show differences by gender, but differences were recorded by such characteristics as age, region, place of residence, income level and education, as well as by the use of technology and savings. In the section of the components of the Index, certain features can also be traced.

Grouping by age took place in different age ranges. Firstly, according to the OECD methodology, three age groups are distinguished: 18-29 years, 30-59 years and over 60 years. This grouping makes it possible to make comparisons across countries. According to this grouping, the lowest Financial Literacy Index was recorded in the age group over 60 years old (11,6 points). However, the financial awareness of people over 60 years old in Ukraine is higher than in such countries as Italy, Georgia, North Macedonia, Montenegro, Romania, Malta, Peru and Colombia. Youth aged 18-29 in Ukraine in 2021 received a financial literacy score of 12 points and is thus on the same level as the Czech Republic and ahead of Italy, Malta, Bulgaria, Croatia, North Macedonia, Montenegro and Romania, Colombia. The 30-59 age group reached 12,6 points in 2021 (tabl.2).

The difference between men and women according to the Financial Literacy Index is statistically insignificant (12,26 and 12,23) according to the results of the 2021 survey, as well as by its components. It is worth noting that in 2018 there was a statistically significant difference in the financial behavior of men and women, with the latter demonstrating better results (tabl. 2).

Firstly, according to the OECD methodology, three age groups are distinguished: 18-29 years, 30-59 years and over 60 years. This grouping makes it possible to make comparisons across countries. According to this grouping, the lowest Financial Literacy Index was recorded in the age group over 60 years old (11,6 points). However, the financial awareness of people over 60 years old in Ukraine is higher than in such countries as Italy, Georgia, North Macedonia, Montenegro, Romania, Malta, Peru and Colombia. Youth aged 18-29 in Ukraine in 2021 received a financial literacy score of 12 points and is thus on the same level as the Czech Republic and ahead of Italy, Malta, Bulgaria, Croatia, North Macedonia, Montenegro and Romania, Colombia. The 30-59 age group reached 12.6 points in 2021 (tabl. 3).

Table 2

The value of the Financial Literacy Index: demographic differences across Ukraine

		Ukraine, 2021 year	Ukraine, 2018 year	Change, %
Gender	Women	12,2	11,7	4%
	Men	12,3	11,5	7%
	18-24	11,4	10,7	7%
	25-34	12,7	12,1	5%
Truck	35-44	12,6	11,9	6%
	45-59	12,5	11,9	5%
	60 and more	11,6	11,2	4%
	Up to UAH 3,500.	11,2	-	-
	From UAH 3,501 to UAH 7,000.	12,0	-	-
	From 7,001 to 15,000 UAH.	12,9	-	-
Personal income	From 15,001 to 20,000 UAH.	13,2	-	-
	From 20,001 to 30,000 UAH.	14,5	-	-
	From 30,001 to 50,000 UAH.	13,9	-	-
	More than UAH 50,000.	15,5	-	-
Family income	We barely make ends meet	10,5	10,8	-1%
	There is not enough money even for food	11,0	10,3	7%
	There are enough funds for food and clothing, but the purchase of durable goods causes difficulties	13,0	11,5	13%
	There is enough money for food, clothes and durable goods	13,9	12,3	13%
Education	Higher Education	13,3	12,5	6%
	Secondary special education	11,9	11,4	4%
	Full or partial secondary	11,2	10,4	8%
Region	Center	11,8	12,4	-5%
	North	11,9	12,2	-2%
	South	12,6	10,8	17%
	West	12,4	11,1	12%
	East	12,5	11,8	6%
Type of settlement	Village	11,8	11,5	3%
	City	12,6	11,7	-1%
Use of technologies	Non-users of technology	9,9	-	-
	Technology users	12,4	-	-
	Savings will be enough for less than three months	11,8	-	-
	There are savings for more than three months	14,2	-	-

Grouping by age took place in different age ranges [4].

Secondly, in the 2018 study in Ukraine, a different grouping by age was used, which allows more precisely to provide recommendations for conducting educational activities in the field of financial literacy. Accordingly, both in 2018 and in 2021, the lowest value of the Financial Literacy Index was recorded in the 18-24 age group and is currently 11,4 points against 10,7 points in 2018. However, the fact that the growth of the Index was the greatest in this age group is indisputable – 7%. It is worth noting that it is young people aged 18-19 who remain the least financially literate with an Index value of 10,1 points, which means the need to continue directing efforts to increase financial literacy in this age group and younger. Financial awareness is also significantly lower in the age group over 60 (11,6), which also requires close attention [3].

Table 3

The value of the Financial Literacy Index: demographic differences in Ukraine and OECD countries

			Ukraine, 2021 year	Average by country comparison, 2020	Average for a sample of OECD countries, 2020*
Index of financial literacy	Gender	Women	12,2	12,7	13,0
		Men	12,3	12,6	13,1
	Truck	18-29	12,0	12,3	12,6
		30-59	12,6	13,0	13,4
		60+	11,6	12,3	12,6
	Use of technologies	Non-users technologies	9,9	10,2	-
		Technology users	12,4	12,8	-
	Availability of savings	Savings will be enough less than for three months	11,8	12,2	12,4
There are savings for more than three months		14,2	13,9	14,2	
Knowledge	Gender	Women	4,2	4,6	4,6
		Men	4,4	4,8	4,9
	Truck	18-29	4,2	4,6	4,7
		30-59	4,5	4,9	4,9
		60+	4,0	4,5	4,5
	Use of technologies и	Non-users technologies	3,2	3,3	-
		Technology user	4,4	4,8	-
	Availability of savings	Savings will be enough for less than three months	4,2	4,6	4,5
There are savings on more than three months		4,9	5,1	5,1	
Behavior	Gender	Women	5,6	5,2	5,4
		Men	5,4	5,0	5,4
	Truck	18-29	5,4	4,9	5,2
		30-59	5,7	5,2	5,6
		60+	5,0	4,8	5,1
	Use of technologies	Non-users technologies	4,4	4,1	-
		Technology users	5,5	5,1	-
	Availability of savings	Savings will be enough less than for three months	5,2	4,8	5,0
There are savings for more than three months		6,6	5,8	6,0	
Attitude	Gender	Жінки	2,4	2,9	3,0
		Чоловіки	2,5	2,8	2,9
	Truck	18-29	2,3	2,8	2,8
		30-59	2,5	2,9	3,0
		60+	2,6	3,0	3,0
	Use of technologies	Non-users technologies	2,4	2,9	-
		Technology users	2,5	2,9	-
Availability of savings	Savings will be enough less than for three months	2,4	2,8	2,8	
	There are savings for more than three months	2,7	3,0	3,1	
Statistically significant difference compared to the sample mean in 2021 at the 95% significance level: green = high value, red = low value.					

The highest level of financial literacy was recorded in the age group of 25-34 years – 12,7 points, but it should be noted that this group lags behind the age groups of 35-44 years and 45-59 years in terms of dynamics (tabl. 3).

Given that the level of income of Ukrainian citizens has changed over the past three years, the comparison with 2018 causes certain difficulties due to the adjustment of intervals. If we analyze the data of 2021, the growth of the Financial Literacy Index can be traced depending on the amount of income of citizens. For groups of respondents with a higher level of income, for example, 7,000 UAH - 15,000 UAH, the value of the Financial Literacy Index is 12,9 points, and for 15,001 UAH - 20,000 UAH – 13,2 points (tabl. 3).

According to the methodology of the OECD report for 2020, respondents were divided into two groups based on the availability of savings to cover current expenses for at least three months in the event of the loss of the main source of income. In Ukraine, the group of respondents who have such savings showed a significantly higher score on the Financial Literacy Index, which was 14.2 points, and thus it secured its place in the TOP-10 among countries in the 2020 OECD study (tabl. 3).

As in 2018, so in 2021, there is a direct relationship between the level of financial literacy and the availability of education: the higher the level of education, the higher the financial literacy score. If the total score of persons with full or partial secondary education is 11,2 points in 2021, then persons with secondary special education (technical school) – 11,9 points, and persons with higher education – 13,3 points. Note that the growth of financial literacy occurred at all levels, except for incomplete secondary education (tabl. 2).

By type of settlement, we observe a growing gap in financial literacy between rural and urban areas. If in 2018 the Financial Literacy Index was approximately at the same level, then currently respondents from the city have 12,6 points, and respondents from the village have 11,8 points (statistically significant difference). If we compare the Financial Literacy Index by region, the following feature is noteworthy: the financial awareness of respondents in the North and Center has worsened, while the South, West and East have become the leaders (tabl. 2).

According to the OECD methodology, technology non-users are those who have not used a computer, e-mail, Internet or mobile phone in the last week. If we compare Ukraine in terms of financial literacy of non-technology users, then 9,9 points is a sufficiently high indicator, since there are countries in which this indicator starts with 8 points. However, if we analyze only the level of Ukraine, this score is definitely low, mainly due to knowledge and behavior. It is noteworthy that this category makes up only 5% of the sample and 68% consists of people aged 60 and older (tabl. 2). Correlation analysis shows (table 4) that, as in 2018, knowledge, attitude and behavior are weakly correlated in Ukraine.

Table 4

Correlation between components of the financial literacy score

	Cognition	Attitude	Behavior
Cognition	1		
Attitude	- 0,01	1	
Behavior	0,27**	0,17**	1

Attitude and cognition are not correlated at all. A weak correlation is observed between behavior and both knowledge and attitude. This means that these particular items of cognition and attitudes from the OECD survey are not determinants of behaviour [18, p.85].

So, Ukrainian society still has a lot to overcome in order to increase the level of financial literacy. Thus, based on the analysis of the global experience of financial inclusion and the peculiarities of the Ukrainian financial market, the maximum effect in this area can be achieved by implementing a set of measures from four components, in the following directions [14,15]:

Component №1 – Practical regulatory support for digital financial inclusion and the introduction of responsible digital financial practices.

Two categories of citizens are interested in the implementation of the first component:

- citizens who are currently not part of the official financial system and do not have access to an account in a financial institution (bank, non-bank, post office, payment institution, etc.) to receive and send payments, store money, manage their financial life.
- citizens who are currently part of the official financial system, but do not have free, free and conscious access to an account in a financial institution, or have problems with financial goal-setting, as well as awareness and protection of their own interests.

The implementation of this component requires availability:

- results of analysis of EU legislation, countries with a positive digital and cashless history, experience of responsible digital financial practice;
- results of the analysis of white books, drafts and current acts of legislation (NBU, KMU, Verkhovna Rada);
- results of market research analysis on financial inclusion in Ukraine;
- the results of the assessment of all areas of national legislation related to digital financial inclusion to identify (and resolve) areas of overlap or contradiction, as well as any gaps, barriers to access. These areas should include: financial services, payment systems, telecommunications, competition, discrimination, identity, barriers for excluded and underserved consumer groups.

The implementation process of this component may include the following elements:

1. Preparation of proposals for the introduction of framework regulation (hereinafter, the framework) for digital financial inclusion, which provides for entry requirements for new market participants, prudential requirements, where appropriate (e.g. for capital and liquidity), consumer protection, anti-money laundering and anti-terrorist financing safeguards and insolvency.

Such a framework should be technologically neutral and flexible enough to cover both new and existing service and product providers (due to the broad definition of the terms digital financial providers and digital financial services). It is also necessary to ensure the ability to pilot innovative new channels, products and services, as well as business models, without the need to immediately comply with all regulatory requirements. At the same time, such a framework should ensure fair and balanced oversight, supporting the obligation to meet anti-money laundering and anti-terrorist financing requirements.

The framework may include:

- principles of open banking, ensuring (restoration) of a competitive environment on the Ukrainian financial market;
- terminological apparatus, principles and provisions of the European Payment Service Directive;
- proportional to all types of service providers requirements for the protection of the rights of consumers of digital financial services;
- an improved legal framework that will protect the confidentiality and security of personal data when using digital financial services.

2. Promoting competition, fair and open conditions for digital technologies for financial inclusion by ensuring that providers of similar digital financial services have similar rights and obligations regardless of their institutional type and the technologies they use. Including the preparation and implementation of the following projects based on the decisions of the Government:

- digitization of large-scale, periodic payments from government institutions to consumers and small businesses (G2C, G2B);
- implementation of transaction services for financially excluded and non-included citizens, which can provide significant volumes of digital payments;
- provision of actual informal free choice by consumers of a financial institution for service;

– elimination of organizational and pseudo-fiscal (documents regarding the facts of receiving digital payments must be actually recognized by the executive power as documents for the movement of goods and provision of legal procedures for the protection of consumer rights) obstacles for SMEs to accept digital payments;

3. Working with national authorities to remove barriers and facilitate the provision of domestic and cross-border financial services to promote digital financial inclusion and ensure a clear delineation of responsibilities between regulators (NBU, KMU, DSFMU, National Financial Service Commission) regarding regulation and regulatory framework related to digital financial services and digital financial inclusion in general.

4. Facilitating the development and implementation of agreed and balanced regulation for the preservation of client funds belonging to non-prudentially regulated providers of digital financial services (financial companies, payment aggregators, providers of payment services that apparently do not provide them - mobile operators), including, for example, escrow accounts, "transfer" schemes of guarantee deposits to reliable banks and the distribution of claims of the Guarantee Fund with appropriate compensation to these funds, risk insurance, etc.

Component №2 – Promoting the development of digital financial services as a priority direction for the development of inclusive financial systems, ensuring the balance of innovation and risks to achieve digital financial inclusion, simplifying and implementing compatible digital identification of clients for digital financial services.

Citizens and financial institutions are not always and not fully aware of the benefits of digital finance, and that risks may develop or increase through the use of digital technologies and that they must be effectively assessed and managed.

The reason for this is that digital finance is constantly changing, improving, and not always all categories of citizens (except for digital geeks) are able to make the first operation of a new type, with a new tool, etc. without proper explanations and training. In addition, digital financial risks take many forms. They may arise due to convergence and various new patterns of interaction and combination of processes and products of existing and new suppliers; may depend on agency networks and a relatively low level of financial literacy among consumers. Digital technology risks can arise in all digital financial services and payment systems chains, including at the operational, settlement, liquid, credit levels, in the process of meeting (or not meeting) anti-money laundering requirements.

The situation is complicated by the fact that criminals use the lack of awareness of consumers and can compromise not only operational processes or system elements, but also innovative products and services as a whole. In addition, the time and procedural and organizational shortcomings of the current paper identification in the digital world inhibit the implementation of innovations and de-stimulate digital financial inclusion.

Therefore, the effect of the implementation of the second component will be reflected on the citizens and financial institutions of Ukraine.

The implementation of this component requires availability:

– analysis results GPMI White Paper, Global Standard-Setting Bodies and Financial Inclusion: The Evolving Landscape;

– the results of the analysis of research by GfK Ukraine in the field of financial services and non-cash payments for 2014-2018.

– the results of the analysis of current threats in the application of digital payments in Ukraine (Exchange-online), Europe (EAST, EC3 Europol, European Parliament, European banking authority, FATF), the world (WB, G20, IFC) and countermeasures;

– the results of the analysis of FATF recommendations, AML EU Directives on digital identification.

The implementation process of this component may include the following elements:

1. Support active dialogue and coordination between all key stakeholders in the digital financial ecosystem, including government, private sector and civil society, to ensure a common understanding of digital financial inclusion, goals and market expectations for digital financial

services in the formats of working groups, press briefings, round tables, press releases for the media.

Facilitating the involvement of mass media, including in the formats mentioned above, to improve skills and gain knowledge about the ratio of benefits and risks in the development of digital finance, the formation of a permanent habit of careful, adequate commenting on new financial technologies with an emphasis on convenience and formation of proper assessment and habits of digital financial hygiene.

2. Promoting the use of de facto market standards and the creation and promotion of new and innovative forms of identification, registration and verification, such as digital biometric identification products and online identity verification services. Establishing acceptable open standards to manage risk and ensure identity, transaction and account security. Encouraging the development of modern and secure digital signature systems that can simplify the authentication and verification process.

3. Development of best practices and industry codes for users on how to use digital financial services, as well as knowledge bases and practical actions on their safe use, protection against unauthorized use, disclosure, modification and destruction of personal data.

4. Development of best practices and industry codes for responsible and fair lending and debt collection.

5. Developing best practices to ensure that digital financial service providers ensure the accuracy and reliability of all data related to:

- accounts and transactions;
- marketing of digital financial services;
- credit scores and reports for financially excluded and underprivileged consumers.

Component №3 – Expanding the ecosystem and infrastructure of digital functional services.

The expansion of a reliable, secure, efficient and widely available retail payment system and ICT (information and communication technologies) infrastructure is especially important for creating an ecosystem of digital financial services), which provides all users with convenient, reliable service points for sending and receiving payments and performing other digital financial services. As far as possible, such infrastructure should reach the "last mile" of rural areas, as well as serve large cities and areas in key transit corridors.

The current number of payment terminals for payments by the most common payment instruments in the country - payment cards is clearly insufficient for Ukraine, and is from 20 to 40% of the number of terminals in EU countries commensurate in terms of territory and number of citizens. In addition, many representatives of SMEs, realizing the importance of income from card transactions, are looking for specific forms of accepting cards for payment – at the expense of buyers by receiving funds to personal accounts, without paying a commission for acquiring and without paying taxes - through P2P transfers, or send consumers to pay through PTKS. Accordingly, the problem also covers fiscal issues and tax evasion.

The effect of the implementation of the third component will be reflected on citizens, business entities and the financial result of the country due to the detinization of retail payments.

The implementation of this component requires availability:

- analysis results cashless & digital payments White Papers;
- the results of the analysis of research by GfK Ukraine in the field of financial services and non-cash payments for 2014-2018.;
- the results of the analysis of modern form factors and channels of digital payments in Ukraine, Europe, and the world;
- the results of the analysis of the introduction of open banking approaches in the EU, interchange regulation in the world.

The implementation process of this component may include the following elements:

1. Preparation of proposals for the modernization and expansion of the infrastructure of the retail payment system and the introduction of open payment platforms (open banking), primarily related to the clearing and settlement systems of the country (including SEP of the NBU), which will ensure safe and effective access to banks, non-bank financial institutions and new (PSD2) payment service providers.

2. Facilitating the use of large-scale public channels such as post offices for the distribution of digital financial services (acquiring, e-commerce, digital financial supermarket, credit brokerage, etc.).

3. Encouraging payment service providers to ensure compatibility and interaction of access points (services) and channels, further expansion of access to cities providing payment and financial services and general convenience for owners of accounts, electronic wallets, payment services, mobile and internet banking (including through working groups, press releases for mass media).

4. Encouragement and persuasion of retail and HoReCa representatives in the expediency of strict compliance with the requirements of the legislation regarding the acceptance of digital finance and partner price offers of the financial industry, including economically justified commissions for acquiring (including through press briefings, round tables, press releases for mass media).

Component №4 Strengthening digital and financial literacy and awareness.

Two categories of citizens are interested in the implementation of the fourth component:

Financially excluded and underserved consumer groups are exposed to various risks related to digital financial services.

They include:

- lack of guarantees regarding funds belonging to non-prudentially regulated suppliers (financial companies, payment aggregators, providers of payment services that apparently do not provide them - mobile operators);
- limited (insufficient) disclosure of commissions and tariffs, terms of use of financial services;
- possible insufficient liquidity of agents, fraud of their employees;
- confusing user interfaces that increase the risk of erroneous transactions;
- insufficient system security;
- irresponsible (predatory) lending through digital channels;
- malfunction of systems, which prevents access to funds;
- unclear or limited compensation systems; inability to store personal data confidentially and securely.

Digital financial products and the inherent benefits and risks are changing so rapidly that conventional methods of obtaining and understanding information through traditional learning methods and channels are ineffective.

Detailed information is needed by users throughout the lifecycle of digital financial products and tools.

The implementation of this component requires availability:

- the results of the analysis of GfK Ukraine research on consumer financial literacy and awareness of anti-fraudulent actions (2018 year);
- the results of research analysis based on the results of training campaigns and the «Humane Phishing» project (2018 year);

The implementation process of this component may include the following elements:

1. Using high-quality digital tools to develop financial literacy, digital literacy programs that build knowledge, understanding and confidence in using digital financial services.

Example:

- online games to help parents teach their children about financial management;
- digital toolkits for tracking income and expenses;
- online programs of small business financial management;
- interactive educational programs.

2. Use through own and partner digital (video, social networks, messengers, e-mail) and non-digital (posters, newspapers) channels (post office, buildings, bank branches and ATMs at enterprises salary projects) practical, accessible financial literacy and awareness materials, for included and excluded, disadvantaged and vulnerable groups, to help consumers understand the features, benefits, costs of using digital financial services and financial security tools.

3. Providing high-quality and uninterrupted support for customers and users, with simple and accessible instructions on the right actions in a particular situation, including complaint submission and tracking mechanism (24/7 call center, online chatbot, website or social media).

4. Provide training by providers of digital financial services to teachers and employees about: product features; regulatory obligations of a financial services provider; fair treatment of inexperienced and vulnerable consumer groups; and regression procedures. Training should also cover the interpretation of documents (contracts, agreements, regulations), especially if the wording is in a language that the consumer does not understand.

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ENSURING THE STABILITY OF STATE FINANCES IN THE CONDITIONS OF EUROPEAN INTEGRATION OF UKRAINE

FINANCIAL GLOBALIZATION: FEATURES OF THE CURRENT STAGE, CHALLENGES AND DEVELOPMENT PRIORITIES

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Globalization is a process by which markets and production in different countries of the world become increasingly interdependent due to trade in goods and services, capital and technology flows. Globalization of the economy is a process of unprecedented growth in the volume of international transactions in trade, financial and investment spheres, movement of information, ideas and cultural values associated with technological exchange.

Considering financial globalization, it is worth noting that it is one of the constituent parts of the globalization of the economy. So, it should be noted that according to the general definition, financial globalization is a process that is a component of the general process of globalization, it is aimed at the formation of a single financial market and proceeds on the basis of the intensification of the international movement of financial capital [1]. Changes in financial markets are the basis of financial globalization.

Also, considering financial globalization, it is worth noting that on the one hand, it promotes the integration of countries into the world financial system, which can have many benefits, especially for developing countries with segmented financial markets. On the other hand, financial globalization, in addition to its positive effects, causes and deepens the asymmetry of the regional and structural-functional distribution of global capital, stimulating its excessive concentration in a small group of post-industrial countries and creating a kind of financial captivity for backward countries, which through the mechanisms of external financing and liberalization internal financial markets face the threat of losing economic and political sovereignty [2].

A broad reflection of the problems of financial globalization was noted in the writings of such Western scientists as: J.P. Allegret, V. Andref, B. Badi, B. Balashshi, R. Baldwin, E. S. Brezis, S. Hoffman, P. Zoido-Lobaton, B. Eichengreen, V. Eng, A. Comford, J. Kregel, P. Krugman, F. A. Lees, L. J. Mauer, M. Obstfeld, K. Okina, F. Martin, L. Neal, E.C. Rose, F. Root, J.T. Stewart, P.D. Sutherland, A.M. Taylor, D. Tobin, M. Feldstein, D. Frenkel, C. Horioka, W.F. Sharp, M. .Shirakawa, S. Shiratsuka, S. L. Shmukler and others. The dynamics of the development of globalization processes and their relationship with the peculiarities of the development of various segments of the world economy were studied in sufficient detail by these scientists.

Financial market analysts note that the globalization of the financial system is based on the interaction of the following phenomena [3]:

- technical progress, which makes it possible to carry out international financial agreements in real time and significantly reduce costs for transport and communication;
- growing competition: on the one hand, between credit and financial institutions in the financial markets, and on the other, between the financial markets themselves as a result of significant development of information technologies and telecommunications;
- restructuring of credit and financial institutions through their merger and acquisition as a result of growing competition between them;

- broad internationalization of business due to the strengthening of the transnational nature of the activities of corporations;
- consolidation of regional integration associations (in Europe – Economic and Monetary Union);
- loosening of firm control over the implementation of international agreements related to the movement of capital of stock exchanges;
- macroeconomic stabilization and reforms in a number of developing countries and countries with economies in transition, which created a favorable climate for foreign investors;
- widespread use of the "leverage principle" (significant borrowing of funds for one's investments) and the development of asset securitization processes in industrialized countries.

Features of the modern development of the global financial market are:

- speculative nature of transactions on the financial market,
- integration of national financial markets,
- the lack of effectiveness of mechanisms for regulating the activities of the global financial market,
- deepening the liberalization of international financial operations, which determines the spontaneous nature of the development of financial markets in the global environment.

When studying financial globalization, it should be noted that it does not have the same impact on different groups of countries, therefore the attitude towards the processes of financial globalization is ambiguous. Usually, the benefits of financial globalization are appropriated by a small number of economically developed countries, and for developing countries, globalization has the effect of increasing dependence on world financial markets [4]:

- increase in the amount of investment and credit capital coming into the country on favorable terms and at low interest rates;
- implementation by the World Bank of the credit program for the rehabilitation of the financial sector;
- reducing transaction costs and increasing the efficiency of competition between financial market entities;
- increasing the profitability of financial markets for their agents;
- stimulation of macroeconomic growth;
- growth of the volume of market operations due to the maximization of trades, in other words, economies of scale and growth of market activity;
- acceleration of interstate transfer of technologies, innovations and know-how;
- availability of financial products for consumers;
- effective cooperation with international institutions in the financial sector (International Organization of Securities Commissions (IOSCO), Organization for Economic Cooperation and Development (OECD), International Finance Corporation (IFC), national securities commissions).

It is also worth considering the negative consequences of financial globalization processes, which include [5]:

- asymmetry of results for different groups of countries, which leads to the emergence of conflicts at the regional, national and global levels;
- instability of the world financial system, which causes regional and global instability due to the interdependence of national financial systems at the global level;
- reduction of the regulatory role of national states, which strengthens the importance of supranational entities and the influence of TNCs;

- destabilization of the economy due to the mass outflow of capital, which leads to the undermining of the stability of the exchange rate of the national monetary unit and the reduction of the gold and foreign exchange reserve;
- the growth of the world debt of countries due to external borrowings, which leads to the debt dependence of debtor countries on creditor countries;
- the spread of the use of offshore zones in international business, which leads to the concealment of tax-free funds from national and international control.

Since the beginning of the current century, the rapid development of the digital economy has played an extremely important role in the evolution of globalization. This formed almost another direction in the development of globalization processes. Digital globalization now has a more tangible impact on economic growth than trade in goods.

One of the important creations of the digital economy was the emergence of anonymous cryptocurrency (Bitcoin, etc.). The former Director of the Department of Strategy, Policy and Analysis of the IMF, M. Mulheisen, recognizes the status of new financial instruments: "The basic technology underlying these currencies is likely to radically change finance, making transactions faster and safer, while better information about potential customers can improve the setting of loan rates due to a better assessment of the probability of repayment" [6, p. 6]. At the same time, he notes, "But what makes these assets attractive also makes them potentially dangerous." The fact is that the uncontrolled emission of cryptocurrency is fraught under certain conditions with a disruption of the macroeconomic mechanism, in particular, an increase in inflation. In this regard, the problems of combating money laundering, the illegal trade in drugs, weapons, hacking tools, and toxic substances are complicated.

The widespread use of cryptocurrency gives a new impetus to the long-standing debate in economic and political circles about the replacement of national reserve currencies, primarily the US dollar, with a universal international currency. Special drawing rights (SDRs) already existing in the IMF - unlike national currencies - cannot be used for operations on private foreign exchange markets, as well as as an instrument of currency interventions. At the current stage, it is not possible to endow the SDR with such functions.

In the final analysis, the adjustment of the processes of globalization, the development, primarily taking into account the digital revolution, of the "rules of the game" of national states is carried out with the help of universal international organizations: first of all, the World Bank (WB), the IMF, UNCTAD, UNIDO, the Bank for International Settlements, etc. In order to achieve effective results, these organizations must respond in a timely manner to changing circumstances and produce installations corresponding to the needs of individual states.

A particularly significant role remains for the IMF. IMF experts say: "Now is not the time to rely on traditional approaches. The time calls for leadership and international cooperation, which must complement each other. Many of the problems that seem difficult to solve cross national borders, and it would be difficult for the leaders of countries to fulfill their wishes of their peoples without cooperation. Mechanisms of cooperation - within the framework of existing multilateral organizations, the G20 and other political forums - can help realize the hopes placed on globalization and limit its negative consequences" [7, p. 17].

It would be an exaggeration to claim that the above-mentioned facts are putting the basic structures of the previously formed global system of international economic relations under attack and that traditional protectionism is once again replacing the globalized economy. However, there is also no reason to ignore what happened and is happening. It is obvious that the changes are largely disordered. However, their dominant trend was the steady transition from a unipolar to a multipolar system of the world economy.

Summarizing what has been said, we note the following:

First, there is no reason to assume that the development of globalization will have a uniformly progressive character, as it was in the recent past.

Secondly, taking into account the rapid introduction of various innovations, especially digital information technologies, we can expect a thorough transformation of the structure and mechanisms of international economic relations. This also implies a possible prospect of increased diversification of national and regional currencies used in international calculations.

Consider the fluctuations of indicators characterizing the level of globalization during the first two decades of the current century. Let's start with the volume ratio of cross-border financing and world GDP. Its fluctuations were caused by significant changes in the macroeconomic situation, primarily associated with the global financial and economic crisis of 2007 - 2009. The total amount of international financing (excluding direct foreign investment) increased from 2311.4 billion dollars. on average for the five-year period 2000-2004 up to 8832.8 billion dollars. in 2007 (or 3.8 times). Its ratio with world GDP increased accordingly from 10.2 to 15.7%, i.e. 1.5 times [8]. In the following two years (2008-2009), the total amount of cross-border financing, on the contrary, decreased by 5.8 times, and its share in global GDP decreased by 6.3 times (to the level of 2.5%). Later, the indicator stabilized at a level close to 2%.

It should be noted that the reduction of international currency and credit operations during the crisis years occurred mainly at the expense of international bank loans and deposits. In 2008 and 2009, funds raised by banks from abroad exceeded those they provided to their foreign borrowers. In the first case, by 1,081 billion dollars, in the second - by 1,637 billion dollars (-1.7% and -2.7% of GDP, respectively). The negative result of international banking operations also took place in 2012 and 2013. According to the assessment of the McKinsey Global Institute, the reduction of bank lending between countries for the period 2007-2020 accounted for 3/4 of the reduction in the total volume of cross-border financing [9]. European banks suffered the greatest losses from the resulting stagnation of international credit activity.

Another indicator of the level of financial globalization is the issue of international debt securities. The dynamics of this indicator (excluding placement of shares on foreign markets) during the first two decades of the 21st century. basically corresponds to the evolution of the entire international financial sphere, although with a relatively smaller amount of fluctuations. Thus, in 2007, the issue of international bonds increased by 2.9 times compared to the average annual value for 2000-2004, and during the crisis years of 2008-2009, it decreased by approximately 1.5 times. The share of the issue of cross-border debt securities in the global GDP in the first case increased by 1 percentage point, and in the second case it decreased by 2.8 percentage points. It is significant that in subsequent years the ratio of the annual issue of these papers to GDP did not return to the former level - on average for 2010 - 2020 it was only 1.05% [10].

As for the stock market (portfolio investments), this indicator did not experience sharp fluctuations. Therefore, it does not have a significant impact on the final dynamics of transnational lending.

In our opinion, consideration of another component of cross-border economic activity - foreign direct investment - requires special attention. The latter create the material basis of international production, shape its structural elements and directions of evolution. According to UNCTAD conclusions, compared to portfolio investments, remittances and official development assistance, foreign direct investment remains the largest and most stable source of financing for developing countries [10].

In real terms, the average annual indicators for the first five years of the current century have decreased: the inflow of direct foreign investment has decreased by 10.4%, and its share in the total global growth of gross investments in fixed capital has decreased by 2.2 percentage points. This was a consequence of the financial crises of the end of the last century. However, in 2007,

compared to 2006, the inflow of foreign direct investment increased by more than 30% (from 1.4 to 1.9 trillion dollars), and its share in the global growth of gross investments in fixed capital reached a record high value of 13.6% [11].

In 2008, under the influence of the global financial and economic crisis, the inflow of foreign direct investment sharply decreased - to 1.5 trillion dollars, that is, by 21.5%, and its share in the growth of gross investments in fixed capital - from 13.6% to 9.7%. As a result of overcoming the crisis and the gradual weakening of tension in the global economy, a tendency to stabilize foreign direct investments appeared. On average, for the period 2008-2014, the inflow amounted to 1,432 billion dollars, and its share in the growth of fixed capital was 8.5% [11].

Since 2016, in a situation of sluggish economic growth and painful political disturbances, global flows of direct foreign investment again showed some reduction - from 1,774 billion dollars in 2015 to 1,746 billion dollars, or by 2%. At the same time, according to the results of 2017, there was an increase in the total volume of global direct foreign investment to 1.8 and in 2018 - to 1.85 trillion dollars, including an increase in direct investment in developing countries, which amounted to about 10 %.

However, according to UNCTAD, this amount of foreign direct investment as a whole remained far below the level required annually to achieve the UN Sustainable Development Goals of 2030. At the same time, it is emphasized that the achievement of the expected parameters may be hindered by political uncertainty and geopolitical risks, as well as changes in tax policy, which can have a serious impact on international investment flows [11].

The UNCTAD report describes the main changes in the directions of world investment flows in 2019 compared to 2018, in relation to certain groups of countries. Particularly noticeable losses were experienced by developing countries, where investments decreased by 14% to 646 billion dollars, including: in Asia - by 15%, to 443 billion dollars; in Africa - by 3%, to 59 billion dollars, mainly due to low prices for raw materials; in Latin America and the Caribbean - by 14% [11].

Foreign branches of transnational enterprises as a whole continued to increase international production. However, the dynamics of this process has significantly slowed down in recent years. During 2011-2019, the average annual growth rates of key indicators decreased: the sale of foreign branches of TNCs by 7.3%, the increase in the amount of added value at the enterprises of foreign branches - by 4.9%, and the increase in employment - also by 4.9%. This is significantly less than during the five years until 2010 (respectively, 9.7, 10.7 and 7.6%).

Since 2019, compared to the previous year, sales volumes of foreign branches of TNCs have increased by 4.2% and their added value by 3.6%. At the same time, the rate of return on the volume of direct foreign investment continued to decrease: from 6.2% in 2018 to 6.0% in 2019. The number of people employed in foreign branches reached 82 million.

The crisis related to COVID-19 caused a sharp drop in foreign direct investment in 2020. Global foreign direct investment flows fell 35% to \$1 trillion from \$1.5 trillion in 2019. This is almost 20% below the minimum value of 2009 after the global financial crisis [12]. Investments in industry and new infrastructure projects in developing countries have been particularly hard hit.

This is a serious concern, as international investment flows are vital for sustainable development in the world's poorest regions. Increasing investment to support a sustainable and inclusive post-pandemic recovery is now a global policy priority. This entails promoting investment in infrastructure and the energy transition, sustainability and health.

The World Investment Report is the result of monitoring global and regional investment trends and the development of national and international policies. The 2021 report examines investment in the Sustainable Development Goals and shows the impact of investment policies on public health and post-pandemic economic recovery. A concerted global effort is needed to increase investment in the 2030 Sustainable Development Goals. The package of recommendations proposed

by UNCTAD to promote investment in sustainable recovery is an important development tool for policymakers and the international community.

With the obvious advantages of international production, practice shows that cross-border financial operations are associated with serious macroeconomic risks. Excessive inflow of capital from abroad increases inflation. There is a danger of financial and currency crises, especially in small countries with open economies. At the same time, the insufficient inflow of capital inhibits the economic growth of individual countries and contributes to the deepening of the recession. UNCTAD experts rightly draw attention to the close interdependence between the movement of individual components of the world economy [13]. Hence the constant search for optimal, balanced and safe levels of cross-border financing.

Despite falling profits in 2020, the 100 largest MNCs have significantly increased their cash reserves, a testament to the resilience of the largest companies. In 2020, the number of state-owned TNCs, which is about 1,600 worldwide, increased by 7 percent [12].

The main part of state-owned TNCs (more than 1,000 companies or almost 70% of the total number) operates in the service sector, approximately 23% - in manufacturing industries and 8% - in the raw materials sector. Finally, major economic groupings such as the G20 and APEC have an increasingly significant influence on the structure and dynamics of global foreign direct investment. The inflow of foreign direct investment to the G20 countries reached a record level of \$1 trillion for the first time [12].

In 2021, global flows of foreign direct investment recovered the lost positions and increased by approximately 10-15 percent. That still leaves the level of foreign direct investment 25% below 2019 levels. According to optimistic forecasts, a further increase in foreign direct investments in 2022-2023 will return them to the level of 2019 [13]. The outlook is uncertain and will depend on many factors, including the pace of economic recovery and the possibility of a recurrence of the pandemic, the potential impact of spending packages on the recovery of foreign direct investment and political pressure.

Let's consider the influence of international financial organizations, in particular, such as the International Monetary Fund (IMF) and the World Bank (WB), on globalization processes. They represent the interests of economically developed countries, global in terms of their institutional and organizational structure and scope. The IMF and the World Bank, as global institutions, have a specific target function - promoting the processes of integration of countries and markets into the global economic system.

According to Fig. 1, it can be seen that from 2020 to 2022, lending decreased, while in the Western Hemisphere, on the contrary, it increased. Between the beginning of the pandemic at the end of March and September 15, 2020, commitments were made to provide 80 member states with approximately USD 91 billion (or SDR 64 billion), of which USD 30 billion was directed to emergency financing (RCF and RFI). In the field of lending, the main activity was carried out in five directions. As global growth recovers during 2021, demand for IMF financing has gradually shifted away from emergency financing driven by urgent balance of payments needs in connection with the pandemic, toward senior credit tranche (SCR) mechanisms, including to address long-term negative consequences of the pandemic. Also, due to the war in 2022, economic growth slowed down in Ukraine [14, 15, 16].

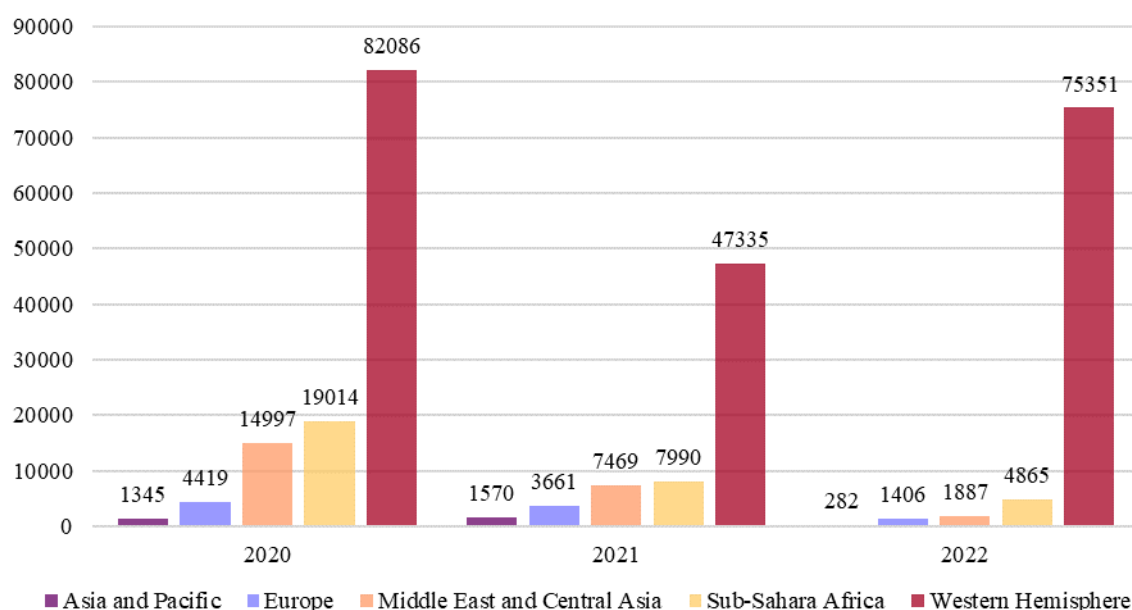


Fig. 1. Financial assistance of the IMF, 2020 – 2022, million SDR [14,15, 16]

Analyzing expenditure by main areas, it can be seen that more expenditure was spent on surveillance, bilaterally and technical assistance. That is, the IMF supported countries in collecting and publishing economic data to improve the process of economic decision-making and increase transparency. Also, a comprehensive plan of measures was developed and implemented, which was drawn up taking into account the specific needs of countries and their potential for the development of aid, which is one of the most expensive areas of activity.

As for the costs of capacity development, which occupy a significant part of the structure of costs in 2022, it should be noted that they are focused on the main areas of competence of the IMF, such as:

- state finances;
- stability of the financial sector;
- operations of the central bank;
- macroeconomic fundamentals and economic statistics;
- assistance to countries in solving interdisciplinary issues, such as income inequality and gender inequality, corruption, climate change and digital money.

The main focus of direct aid is focused on working with central banks to modernize their financial systems. For example, exchange rate policy, inflation policy, debt policy and banking supervision. This strengthens the financial stability of the country, stimulating the growth of the domestic economy and international trade.

Therefore, it should be noted that, based on the analysis of the activities of the International Monetary Fund, which was given above, the influence of this financial institution on the global economy and globalization processes is significant, and in most cases positive [17].

The World Bank is an equally important global organization. To begin with, it should be noted that it includes two institutions, such as: the International Bank for Reconstruction and Development (IBRD) and the International Development Association (IDA). Two strategic goals are the basis of the activity of the IBRD, namely: promoting social improvements for the benefit of the poorest population in developing countries and financing investments aimed at economic growth. The dynamics of funds provided by the IBRD by region can be followed in Fig. 2.

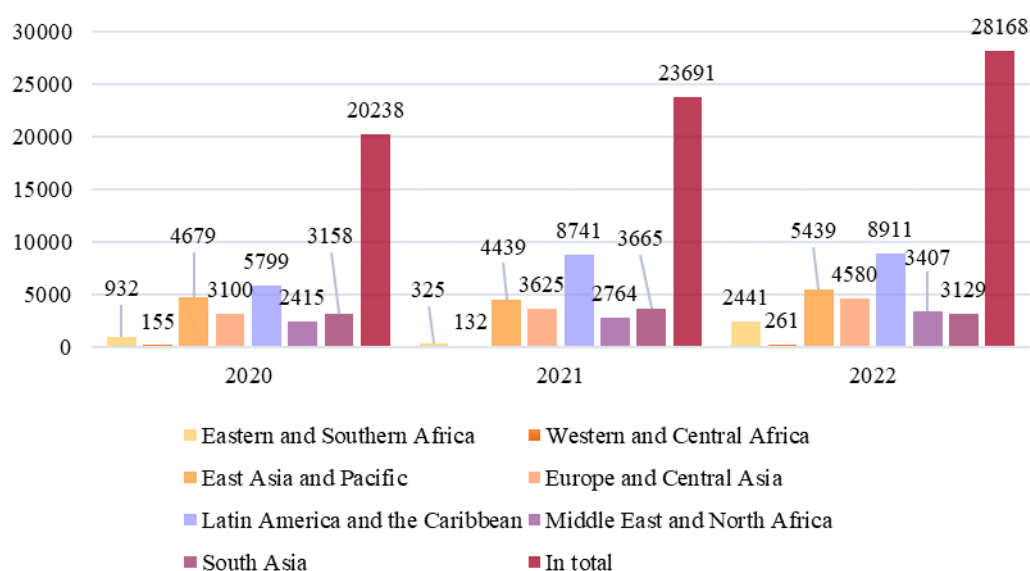


Fig. 2. Dynamics of funds provided by the IBRD in the 2020 – 2022 financial years, million dollars USA [18]

The huge scale of the financial market allows the United States to play the role of a global center that accumulates a significant part of the world's savings and transforms them into its financial obligations, as well as through further reinvestment into financial instruments of other countries. The activities of this center have evolved over time. Today, the USA performs the functions of a "world venture capitalist", which issues debt securities with fixed income and other obligations and uses the funds raised mainly for capital export in the form of direct foreign investments and portfolio investments in shares [19, p. 12]. Developing a financial strategy helps the US adapt to long-term changes in the global economic situation and maintain a privileged position in the international movement of capital.

The high level of development of the financial market has a positive effect not only on the import, but also on the export of capital from the USA. The presence of such a market simplifies the access of American corporations to loans and investments, thereby expanding their opportunities for financing promising projects and operations abroad, including large mergers and acquisitions. This, in turn, contributes to the increase in the efficiency of American capital investments in other countries and the growth of the net investment income of the United States.

Along with the considered primary grounds of the financial power of the USA, in our opinion, a group of secondary factors derived from them should also be highlighted, which contribute to strengthening the levers of influence of the USA on the international financial system. These include the leadership of the dollar in the world monetary system, the leading positions of American financial institutions in international business, as well as the strong influence of the United States on the international system of organizations that form the architecture and information infrastructure of the international financial system.

The most important of the derivative factors is certainly the status of the dollar as the world's leading currency. Its wide appeal in the world dramatically increases the liquidity and attractiveness of American financial assets for non-residents. This stimulates the inflow of US capital and reduces the cost of its attraction [20]. In addition, the international demand for the dollar improves conditions for the export of capital from the United States, allowing American investors to make extensive use of their currency in deals to acquire assets abroad.

A significant source of US financial power is the activity of American banking institutions that occupy system-creating positions in the international financial system. The largest US banks are among the main operators of the global financial market. So, five banks - JPMorgan, Bank of America, Citigroup, Goldman Sachs and Morgan Stanley - are the leaders of the global investment banking market. They regularly lead the annual rankings of the world's financial institutions by the amount of income from investment banking services, including the organization of international syndicated loans and bond loans, IPO and M&A deals [21]. Four of them (with the exception of Morgan Stanley) are consistently among the top 10 organizations - the leading dealers of the global FOREX currency market. In 2021, they accounted for 30% of its turnover [22].

A notable role in global finance is also played by American investment and insurance companies, managing huge funds that they accumulate through their global networks and invest in financial instruments of even other countries. According to the results of 2020, the top 20 largest management companies in the world included 12 institutes from the USA, while four companies - BlackRock, Vanguard Group, State Street Global and Fidelity Investments - led the rating. Under their management were assets in the amount of 30 trillion dollars [23].

Finally, another pillar of US financial power is its strong influence on key international financial organizations involved in regulating international monetary and financial relations and lending to developing countries, as well as on leading companies and agencies that form the information infrastructure of the global financial market. and exert a serious influence on its conjuncture.

The United States is the largest participant in the IMF and IBRD (in 2020, their vote share was 16.52% and 15.98%, respectively), as well as a number of regional multilateral development banks, including the Inter-American Development Bank (vote share - 30.01%), EBRD (10.11%) and the Asian Development Bank (12.78%). Due to its status, the United States is able to exert formal and informal influence on the credit policy and ideological attitudes of these international financial organizations, and through them on the countries financed by them [24].

Although researchers are usually very cautious in evaluating the role of the United States in the management of international financial organizations, the general conclusion that their activities often contribute to ensuring American interests is quite clear. In particular, T. Dang and R. Stone come to the conclusion that the provision of IMF loans due to reforms in the financial sector of the borrowing countries has a strong positive correlation with the dynamics of agreements on the purchase of local financial organizations by institutions from the USA [25, p. 16].

The support of the financial power of the USA is also greatly facilitated by their leadership in the field of information support for the activities of the global financial market. Many of the leading organizations forming its information infrastructure are of American origin. Thus, the headquarters of media corporations Bloomberg and Thomson Reuters are located in the USA - two of the world's largest providers of financial information, the "big three" of global rating agencies (Standard & Poor's, Moody's).

Let's take a closer look at the financial integration of Asian countries. Currently, Asian countries are witnessing the active development of financial relations at the global and regional levels, as well as the expansion of the activities of new financial centers. This usually preserves the established model of foreign economic relations, when more than half of trade is carried out within the region, and financial relations are dominated by Western countries. Many large Asian exporters have a large positive current account balance, which is accompanied by the transfer of financial funds to the international capital market.

In terms of intra-regional capital flows, the countries of Asia are significantly ahead of the states of other developing regions, but they are inferior to the developed countries of Europe and America. The index of monetary and financial integration in Asia in 2019 (excluding direct investment) was at the level of 0.4080, Africa – 0.2854, Latin America – 0.3549 (EU indicator – 0.4651) [26].

Let's define the main directions of regional financial integration in Asia.

Asian financial markets are integrated to varying degrees with the global financial market. Tokyo, Hong Kong and Singapore are in the forefront. The volume of trading in the markets of Malaysia and Thailand is still limited. Hong Kong, Tokyo, and the offshore markets of Malaysia and Singapore are highly synchronized with the London market in the absence of crises. For the domestic markets of Malaysia, Singapore and Thailand, a different picture is characteristic: there, interbank rates often deviate significantly from the covered interest parity.

Financial integration is closely related to trade, production and labor. The strengthening of financial ties is facilitated by the removal of barriers to regional flows of capital and financial services, the improvement of communications and information channels, as well as the harmonization of regulatory and standards [27]. Regional initiatives to strengthen and deepen the bond market in local currency reduce dependence on external financing in dollars and euros, increase the financial stability of national markets and companies.

In order to develop general approaches to financial integration in the region in the first decade of the 2000s, a number of documents containing a conceptual justification of the directions of interaction were adopted. The main initiator of the development of regional cooperation is the Asian Development Bank. In 2006, he developed the Strategy of Regional Cooperation and Integration. The monetary and financial integration measures formulated in it were reflected in Strategy 2020, a long-term planning document. After that, there was an increase in the volume and share of projects in this area of integration in the total volume of operations approved by the new Operational Plan for Regional Cooperation and Integration for 2016–2020 [28].

Let's summarize the institutional foundations of financial integration in Asia.

The most serious problem of financial integration in the region remains its weak institutional basis. For several decades, integration in trade and related areas has been developing in Asia. However, multilateral agreements on the regulation of monetary and credit relations are of a limited nature, there are no interstate mechanisms for coordination of financial policy.

The Association of Southeast Asian Nations (ASEAN), which includes 10 countries, became an association that deals with the entire complex of economic integration issues and plays an independent role in international relations.

Since the end of the 1990s, in addition to bilateral agreements, multilateral agreements were concluded within its framework, which was determined by the need for collective efforts to overcome the adverse consequences of crises in the world economy, to regulate mutual trade relations, and to develop a unified approach to the problems of liberalization [29]. In order to expand economic relations with neighboring countries, the cooperation mechanism of the Association with China, Japan and the Republic of Korea (ASEAN+3) was launched [30]. Since the middle of the first decade of the 2000s, Free Trade Agreements have been concluded, including sections on the movement of investments.

The impetus for the institutionalization of financial integration was the creation of the ASEAN Economic Community (AEC) in 2015. Within its framework, a number of initiatives have been adopted to expand cross-border financial cooperation between capital markets in ASEAN and ASEAN+3. The following working groups were created for implementation:

- regarding the liberalization of the account of capital transactions and control of the implementation of priority directions for ensuring the free flow of capital in the region;

– by payment and settlement systems, and by 2022 – by the Operational Group within the ASEAN system on banking integration;

- on the liberalization of financial services, including banking and the insurance sector;
- regarding the development of the infrastructure of ASEAN capital markets with the aim of developing a set of measures for ASEAN issuers and investors to gain access to ASEAN cross-border stock and bond markets through integrated access, clearing, storage and settlement systems.

In addition, the ASEAN Capital Markets Forum (ACMF) is expected to be developed, focused on the harmonization of domestic legislation, regulations and the development of market infrastructure with the aim of integrating the regional stock market.

ASEAN has developed a "road map" for monetary and financial integration and a Strategic Action Plan for 2016-2025. They define the main approaches and stages of action in those areas that are considered crucial for financial and currency integration, namely: development of the capital market, liberalization of the account of capital transactions and financial services, currency cooperation. The development of the capital market involves the improvement of the regulatory and legal framework, the expansion of private financing, as well as the promotion of the expansion of cross-border cooperation, connections and harmonization of capital markets in the region. It is assumed that the orderly liberalization of the capital account will be accompanied by measures to protect against volatility and systemic risks [31].

Currency cooperation includes the development of an ASEAN payment scheme for regional trade to reduce demand for dollars and promote the stability of national currencies. A step in this direction was the introduction within ASEAN and ASEAN+3 of bilateral and then multilateral agreements on currency swaps and repos as credit lines against future financial shocks (Chiang Mai Initiative). There is an Agreement on Settlement in Local Currency for Trade and Investment between Indonesia, Malaysia and Thailand, which provides for the expansion of the network of bilateral agreements between them. Increasing integration with neighboring countries with sufficient capital (China, Japan, Republic of Korea) can increase capital flows, but will require the creation of a multilateral financial infrastructure.

Liberalization of trade and services within the framework of ASEAN increases the need for cooperation between central banks and commercial banking structures in the ASEAN regional market. The main measures for banking integration should be implemented by 2020-2025, but experts are already predicting possible problems of the transition period, especially for small players in the market of banking and financial services. For example, the Philippines, with its weak banking sector, is expected to face the most pressure from the outside, as competition from large foreign banks will increase markedly. In order to improve their competitive positions, countries with smaller banks by world standards should expand their banking networks and increase the capital of joint financial institutions [32].

South Asia, due to reasons of the political and economic order, does not yet have sufficient organizational potential for the development of the basic directions of financial integration. Within the framework of the intergovernmental South Asian Association for Regional Cooperation (SAARC), a Group of Central Bank Governors and Ministers of Finance has been formed, with goals similar to those of ASEAN. So far, it provides only the exchange of information on macroprudential issues and does not take any significant steps to establish financial cooperation between member countries. The South Asian Development Fund has been established under SAARC, which invests mainly in socio-economic development projects in individual countries.

Another regional organization of Asia - The Executives' Meeting of East Asia and Pacific Central Banks, EMEAP - unites central banks and monetary regulatory authorities of the countries of East Asia and the Pacific Ocean. It plays an important role in the coordination and cooperation of the financial authorities of the region and works in close contact with ASEAN+3, ADB and the

Bank for International Settlements on the creation of the Asian bond market. The effectiveness and influence of organizations in the implementation of anti-crisis policy in Asia (Office of Macroeconomic Research of ASEAN+3, etc.), which concluded agreements with ADB on macroeconomic supervision and support of financial stability, have increased [33].

Thus, it is possible to distinguish four main groups of organizations that are fully or partially engaged in the development and implementation of the main areas of financial integration in Asia:

1) specialized sections within official regional intergovernmental organizations (ASEAN, SAARC, etc.);

2) specialized regional financial organizations (AMRO, CIMM, ACFM);

3) banking, investment and other associations;

4) regional programs implemented at the initiative of development banks (ABMI, ACIF).

In their efforts, the Asian states focus primarily on the European Union, which demonstrates the most modern model of regional financial integration. European integration is based on the functioning of a number of supranational institutions that carry out regulation both within the framework of the entire financial system and in its separate links (banking market, securities market, derivatives, etc.). In essence, the EU countries transferred part of their financial sovereignty "upwards". The introduction of the euro and the liberalization of the financial services market ensured a deep integration of their money and credit markets.

Compared to European, East Asian financial integration is still extremely weak. Its regulation is based on the NPP documents adopted in 2015, some of which are purely declarative in nature. Large players, such as Japan and the People's Republic of China, participate in integration mainly through intergovernmental development banks and regional institutions (ADB, AIB) and to a lesser extent through multilateral banking and portfolio programs of business circles [34].

According to ADB calculations, in 2016 the financial integration coefficient of Asia was 0.87 (EU indicator = 1). At the same time, the gap in institutional integration was estimated at 3.4 times, that is, even more than in Latin America. Thus, institutional integration remains the weakest link of economic, including financial, integration in the Asian region, and the situation is unlikely to significantly improve in the near future [32].

It can be assumed that direct investments will play a decisive role in intra-regional financing, and in various forms (mergers and acquisitions, new projects, etc.) such investments are directly related to the intensification of foreign economic activity, the formation of value-added chains, and the development of bilateral and multilateral investment agreements. Since the banking sector is the main source of financing for most of the countries in the region, the regional consolidation of banks, the creation of joint institutions for financing foreign trade and investments acquires the most important importance. Such processes will be significantly influenced by China, which, in the face of growing trade disputes and restrictions on the part of the United States, will increasingly reorient its trade and investment interests to East and South Asia.

At the same time, in a number of countries, the efficiency of portfolio operations remains low, there are no separate segments of the financial market, and its legal basis is insufficiently developed, which negatively affects the profitability and safety of Asian assets. However, as Asian countries continue to develop their financial systems and promote common regulatory standards, the regional market can be expected to attract an increasing share of portfolio and banking investments.

The main problem is the weak organizational basis of interaction, which is due to significant differences in the depth of financial markets of subregions and individual countries. Until now, organizational efforts are aimed mainly at reducing the vulnerability of national economies to regional and global crises.

To a lesser extent, they are aimed at creating an institutional structure for a unified financial and fiscal policy. Solving this task is connected with the liberalization of the capital accounts of the member countries, the gradual reduction of the share of dollar transactions, the creation of its own settlement and payment unit.

The main strategic trends in the further development of financial markets are:

1. Increasing the pace of competition on international financial markets between lenders and borrowers, which was the result of the action of two factors, such as the constant search for profitable areas of capital investment by transnational financial organizations and the need of consumers of financial resources for significant amounts of financing (while the need for funds exceeds their supply).

2. Significant integration of international capital markets, the impetus for which was the elimination of many barriers to entry into national capital markets of international lenders and borrowers, increased mobility of debt capital, reduction of transaction costs, rapid development of information systems.

3. The convergence of international financial markets, which became possible under the conditions of weakening the legal division of investment and commercial banking business, as well as the creation of financial holdings based on financial organizations of flexible specialization.

4. Concentration of international financial markets, i.e. the process of merger of both creditor and borrower organizations.

5. Computerization and informatization of financial markets, which consists in the widespread use by participants of international financial markets of the latest information systems, global databases and integrated operations management systems.

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BUDGETARY AND MONETARY POLICY: THEORETICAL PRINCIPLES AND PRACTICE OF COMPLEMENTARITY

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The management of public finances in view of European integration processes and economic reforms is directed in accordance with state policy. Politics covers all the areas of activity and depending on the sphere of social relations, which is the object of political influence of the state, is defined as economic, social, financial policy; within the framework of financial policy, fiscal (budgetary, tax, debt), monetary and credit, currency, customs, etc. Budgetary and monetary policies have their specific goals and objectives in the economic system and therefore represent its institutionally separated, independent components. However, in terms of the direction of the regulatory influence on the development of the economy, they are largely identical, which is why it is possible to change the state of the economy by measures of both monetary and budgetary policy. The connection between the mechanisms gives reasons for scientists to consider them as alternatives, which led to a long discussion about the advantages and disadvantages of each of them and about their place and role in the economy regulation. Currently, domestic practice indicates the adjustment of fiscal policy to those macroeconomic processes that occur spontaneously, or the implementation of those guidelines that are recommended to Ukraine from the outside. Thus, from the current interests point of view, it is difficult to justify the priority and the volume of budget expenditures for servicing the public debt (although trust in Ukraine as a responsible borrower served in moments of critical lack of resources during the Russian military aggression, which made it possible to additionally attract financial resources of credit and grant nature). Encouraging non-resident investors to buy Ukrainian government bonds on the primary market with preferential taxation (where the ultimate beneficiaries are representatives of the domestic capital) is a manifestation of private rather than national interests. Along with this, in view of the need to achieve a single target guideline, effective coordination of tools, levers of budgetary and monetary policy is important. The active phase of Russian military aggression against Ukraine is a significant test, including the ability to ensure the budgetary and monetary policies complementarity. According to the Cabinet of Ministers of Ukraine forecasts, included in the project of the state budget of Ukraine for 2023, an increase in inflation (+30%), an increase in the exchange rate of the hryvnia against the US dollar (up to UAH 50/dollar by the end of the year), a decrease in the level of redistribution of GDP through the budget (up to 19.7% - the ratio of budget revenues without transfers to GDP), an increase in the level of expenditures (up to 39% of GDP) are expected, the budget deficit will reach 20% of GDP, the amount of public debt may exceed the amount of GDP [1, 2]. Under such conditions, ensuring the budget system financial stability and macroeconomic stability is an extremely difficult task. The results of the practical implementation of the coordination of measures of budgetary and monetary policy of Ukraine in view of their theoretical basis are ambiguous and need to be studied.

Review of scientific positions. The positions of foreign scientists have the greatest influence on the understanding of the fiscal policy essence. Thus, S. Fischer, R. Dornbusch, R. Schmalenzi use the term fiscal policy and interpret it as decisions made by management structures regarding public expenditures and established taxes [3 p.512]. Campbell R. McConnell and Stanley L. Brew define fiscal policy as the deliberate manipulation of taxes and government spending by the government to change real GDP and employment levels, control inflation, and stimulate economic improvement. [4]. Edwin J. Dolan, Colin D. Campbell, Rosemary J. Campbell note that there are two sources of government influence (fiscal and monetary policy) on the process of the income circulation in the state, the size of nominal national income, and also on the degree of influence of nominal changes in income to changes in real values and price levels [5]. At the same time, fiscal policy refers to the government's policy in the field of taxation and public spending. The winner of the Nobel Prize P. Krugman considers the concepts of fiscal and budgetary and tax policy to be synonymous and interprets it as a type of stabilization policy, which covers changes in taxation, state transfers or state purchases of goods and services [6].

The domestic scientists quite often consider budget policy in combination with a tax policy, that is, as a fiscal policy. Thus, A. Chukhno, P. Yeshchenko and G. Klymko consider fiscal policy as a system of government measures aimed at changes in public expenditures, taxation and budget creation to ensure accelerated economic growth with full employment and stable prices [7]. V. Bazylevych, K. Bazylevych define fiscal policy as government influence on the economy through taxation, formation of the volume and structure of public expenditures with the aim of ensuring an adequate level of employment, preventing and limiting inflation and the cyclical fluctuations harmful effects [8, p. 690]. Outlining the essence of the sustainable development fiscal policy as a set of actions and measures aimed at ensuring the stability of the economy and the financial system against environmental, social and managerial risks, at supporting the processes of creation and distribution of social mixed value, O. Sushchenko emphasizes the possibility of combining fiscal and quasi-fiscal tools to achieve the goal of sustainable development in the most efficient and effective way [9, p. 31]. A set of measures, methods, techniques of the government, aimed at the formation, distribution and use of centralized state funds, the resolution of contradictions that arise as a reaction to external and internal fiscal shocks and the smoothing of imbalances that are formed in the fiscal system, through changes in the taxation system, state expenditures, social contributions, debt financing, according to M. Slatvinska [10, p. 12], is a fiscal policy carried out with the aim of influencing the economy and implementing the tasks of the country's socio-economic development strategy. T. Bohdan emphasizes that in recent years, attention has been paid to the macro-stabilization function of fiscal policy in Ukraine, and the activities of authorized bodies for the implementation of the functions of income redistribution and allocation of economic resources have been reduced to a minimum. Thus, "in conditions of structural degradation of the economy and a large-scale socio-demographic crisis, including as a result of the COVID-19 pandemic, an active increase in budget expenditures for law enforcement agencies and debt service (which has actually been implemented since 2015 in Ukraine) has no rational arguments. After all, the priority provision of law enforcement agencies, debt payments in the face of chronic underfunding of human capital development sectors is one of the causes of mass poverty of the population, the continuation of large-scale emigration of Ukrainians abroad and the socio-economic degradation of the country." [11]. The team of authors led by A. Krysovatiy considers fiscal policy as an adaptive mechanism in the system of state regulation, which should be aimed at ensuring the adequacy of regulatory measures to internal and external changes in the economic environment with the aim of state and regions' sustainable development and improving the welfare of society on this basis. Scientists point out that the duality of the issue is that, on the one hand, fiscal policy should ensure resource filling of budgets at all levels, and on the other hand, fiscal instruments are used as macroeconomic stabilizers to stimulate economic growth and regulate the macroeconomic situation (to reduce cyclical fluctuations, achieving full employment, combating inflation) [12]. Z. Varnalii, S. Onyshchenko, T. Buhai single out the components of fiscal policy, emphasize the security aspect, defining budget policy as a financial category that includes a system of relations, measures and

actions of state authorities in the field of managing budget processes based on the concept of the budget system development with the aim of achieving a public socio-economic effect and should be oriented towards stimulating the development of the real sector of the economy [13,14].

Monetary (monetary and credit) policy is most often considered as a set of measures of the state represented by the central bank in the field of monetary and financial and credit sectors, aimed at achieving certain strategic goals of the country's economic development [15, p.52]. The strategic goals of monetary policy can be focused on: maintaining low inflation rates (a mandatory condition for maintaining macroeconomic balance in the economy and a state of certainty for all economic agents, since the stability of the monetary unit provides opportunities for long-term savings and investments); ensuring the national currency stability in terms of the exchange rate ratio with other currencies (a mandatory condition for maintaining trust in the national currency on the part of domestic and foreign businesses, facilitating conditions for planning long-term transactions of subjects of foreign economic activity); ensuring foreign economic balance, maintaining the payments balance (a mandatory condition for the country's stable economic development, which is associated with balancing the country's money and commodity flows as a participant in the world market); promoting a high level of employment (for example, the Federal Reserve in the USA). In the process of implementing monetary policy measures, mechanisms and instruments creating additional risks for the implementation of the state's budget and debt policy can be used.

The purpose of the work is to study the nature of the influence of the state's budgetary and monetary policy on macroeconomic stability, financial stability; to determine the specifics of the relevant tools and levers introduction and forming promising directions for their coordination, including in the post-war period.

In order to achieve the target guidelines for the economic systems functioning, it is important to form a financial policy and agree on effective mechanisms for the interaction of the components in the process of using system resources. Given the essence of the state's financial policy — the distribution and redistribution of financial resources, its main task is to provide appropriate financial resources for the implementation of the social and economic development state program. At the core of these operations is a management choice: regarding subjects — owners or managers of financial resources; sources and methods of financial resources formation; priority directions for the use of financial resources; level of centralization of financial resources at the disposal of the state. Further detailing of the managerial influence object makes it possible to single out the relevant components within the framework of financial policy. The national socio-economic policy has legally defined legal, economic and organizational principles of formation [16]. The way financial policy is implemented through the complex interaction of tools (monetary, budget, tax, debt) depends on the optimal, effective budget process, and accordingly, budget policy, as well as an effective credit system and monetary policy. Considering the technologies of the budgetary process, it can be argued that budgetary and monetary policies, as components of financial policy, are implemented in correlation. Taking into account the different target guidelines of monetary and budget policy, their coordination and mutual agreement is important. The Ministry of Finance and the National Bank, as the main entities of formation and implementation, must adjust the budgetary and monetary policy measures in such a way as to be able to achieve the set goals in view of the general public interests. Due to its specificity, budget policy cannot fail to take into account the goals of monetary policy, forecast monetary indicators, and the monetary policy of the NBU, in turn, affects the formation and execution of budgets. The process of budget planning begins, according to the current regulations, precisely with the formation by the National Bank of the main indicators of the monetary policy for the forecasted period and their submission to the Parliament and the Government for consideration. The budget process effectiveness largely depends on the correct definition (where the accuracy of forecasting plays a significant role) and consistency of socio-economic development indicators, budget indicators and the main parameters of monetary policy, which are basic for the development of the forecast and the state budget project. In view of the above, it is worth noting the presence of problems that may be due to the lack of a coordination mechanism for the above-mentioned main macro-indicators.

Theory and practice prove that in order to increase stimulation of production, it is considered expedient: within the limits of monetary policy — to lower the interest rate and increase the money supply; within the limits of the budget policy — to reduce the level of taxation and increase budget expenditures. Such a connection between the mechanisms determines the scientific debate, which has not only theoretical, but also practical significance in view of the need to find an optimal solution to the question: with the help of which measures can the economy be brought out of the crisis as quickly as possible — reducing taxes, increasing government spending, increasing the money supply or applying all measures simultaneously. Most noticeably, positions on these issues were divided between Keynesians and Monetarists. J. M. Keynes and his followers, absolutizing the role of a state in regulating the economy, prefer fiscal policy measures because: they have a more direct and tangible impact on the activity of economic subjects; the reaction of the market situation to fiscal policy measures is more predictable; the impact of fiscal measures on economic growth appears faster than the impact of monetary measures; state decisions on the application of measures can be made more quickly. Monetarists, led by M. Friedman, absolutize the ability of the market economy to self-regulation, believe that the advantages of fiscal policy formulated by Keynesians are purely abstract and do not manifest themselves in reality. Fiscal measures are characterized by a longer period of implementation than monetary policy measures, since changes in taxes or budget expenditures affect the interests of most economic entities and cause significant social resonance, while political disputes arise that delay the adoption of necessary decisions for a long time. In addition, there are risks of the taxation system imperfection, the ability of economic entities to avoid paying taxes, etc. Frequent changes in the taxation system or budget financing have a negative impact on the economic entities conduct. The high level of taxation leads to the curtailment of the activities of economic entities in the real sector and/or transition to the shadows. The effectiveness of fiscal measures is significantly weakened in conditions of inflation. Because of these circumstances, fiscal policy is significantly less effective than the monetary one.

A vivid illustration of scientific discussions, the formation and refutation of theories, the genesis of scientific opinion regarding the instruments of state regulation of the economy, the interaction of fiscal and monetary policy is an interview with Nobel laureate P. Samuelson, which was first published in *Macroeconomic Dynamics* in 2004 [17], and presents an insider's description of the development of scientific opinion regarding the effectiveness of the monetary paradigm ($MV = PQ$; where M is the money supply; V is the speed of money circulation; P is the price level; Q is the production volumes) when conducting analytical studies of the financial situation, when forming monetary policy. According to the results of discussions in world economic theory and in regulatory practice, the economic development monetary factor has gained wide recognition. Moreover, there is now a clear convergence of Keynesians and Monetarists' positions regarding the assessment of the role of fiscal and monetary policy in the system of state regulation of the economy. Currently, they are not considered as alternatives, but as complementary to each other in a single system of economic policy, with their own special goals and mechanisms of influence on aggregate demand.

Regarding the Ukrainian practice, one can agree with S. Hasanov's opinion that "economic policies, including fiscal and monetary, are mostly unpredictable; internal political cycles turn into determining factors of economic fluctuations, the amplitude of which increases in proportion to the frequency and unpredictability of political shocks; social, economic, public, and personal mistrust of the legislative and executive authorities actions is deepening, even when relatively well-founded and rational decisions are made" [18, p.7]. Taking into account the above, we must state that within the framework of the budgetary and monetary policy interaction there are many issues that require coordination, namely:

- budgetary and monetary policies have different goals and tools for their implementation (sometimes the goals become opposite, which requires the formation of an institutionally fixed mechanism for resolving contradictions);

–the time periods for the monetary and budget policies implementation in most cases do not coincide, which can provoke instability in the financial and monetary sphere and requires the coordination of current measures by the authorized bodies;

–the periodic tension of the problem of repayment of the Government's debt to the central bank leaves many questions open given the fact that the NBU is an internal creditor of the Ministry of Finance of Ukraine;

–different target guidelines and contradictions in the debt policy of the Government and the NBU;

–aggravation of contradictions between budgetary and monetary policy at the end of the budget year, associated with a sharp decrease in funds on the Government's accounts, which leads to a sharp increase in the money supply and increases inflationary risks and requires the formation of liquidity management measures, etc., became characteristic for Ukraine.

In order to identify points of contact between budgetary and monetary policy, we see it necessary to consider some definitions regarding them.

Budgetary policy as a component of the fiscal policy of the pre-war period. Foreign researchers often do not separate the categories of budget policy or tax policy, combining them by content, for the purpose of implementing fiscal policy. The dual nature of fiscal policy is manifested precisely because of the need to reconcile the contradictions of methods, tools of tax and budget policy. Most often, in theoretical works, the definition of fiscal policy is used, as a set of tax and budget policies, as one of the tools of state intervention in the economy with the aim of adjusting the extremes of economic cycles.

In the classical sense, fiscal (or budgetary and tax) policy is a tool for: redistribution of income and state provision of the most vulnerable sections of the population; adjusting the allocation of economic resources and increasing the productivity of production factors; macroeconomic stabilization and maintenance of fiscal stability. The role of a fiscal policy is important as a lever for raising economic development in underdeveloped countries, as well as as a tool for correcting structural imbalances in the economy and responding to new global challenges. **IMF** specialists recognize that new social, economic and technological trends in the global environment generate new challenges for public finances and require adjustment of the expenditure part of the budgets in many countries.

The point of view regarding the fiscal and budgetary and tax policy identification has grounds for existence, since this type of state influence on the economy is carried out through the formation of budget revenues and the implementation of state expenditures in the form of state purchases, transfer payments, and payments on debt obligations. Fiscal policy makes it possible to solve the problems of filling the budget through economic growth, and the system of taxation and expenditures are the tools for stabilizing the economy, with the help of which the created product is redistributed between the state and society. In general, we share the position of scientists who distinguish between the concepts of fiscal and budgetary, tax policy, we note that budgetary and tax policy involves an emphasis on the problems of filling budgets of different levels in volumes sufficient to finance expenditures according to established priorities; tax and debt policy in this case is subordinated to the solution of budget policy tasks.

Theoretically, three types of fiscal policy are distinguished (with a corresponding set of measures and tools): neutral (carried out when the economy is in equilibrium; public expenditures are fully financed by tax revenues and the budget result has a neutral effect on the level of economic activity); stimulatory (carried out during an economic downturn; provided aggregate supply exceeds aggregate demand, aggregate demand is increased to overcome the recessionary gap due to an increase in government spending, which in turn leads to an increase in the budget deficit); restraining (occurs when public expenditures are lower than revenues, is carried out to repay the public debt; when aggregate demand exceeds supply, inflationary expectations occur; to balance the situation, public expenditures are reduced, resulting in a budget surplus).

The formalized system of measures and tools used by the state in its financial activities to respond to changes in the economy can be presented in a simplified form as a balance of incoming and outgoing financial flows:

$$TP + Db = Ep + Tr + Edebt + Ex, \quad (1)$$

where TP is tax payments as budget revenues (in the macroeconomic understanding as a share of GDP that is redistributed through the budget in view of the taxation system),

Db – budget deficit,

Ep – public expenditures (budget expenditures and expenditures of social funds),

Tr – transfers to the private sector (including social transfers),

Edebt – expenses for servicing the state debt,

Ex – net exports (as the difference between exports and imports).

The budget deficit, given the possible sources of financing, can be presented:

$$Db = MF + BF, \quad (2)$$

where MF is monetary (domestic) financing;

BF – debt (external) financing.

Then the equation, which reflects the relationship between the monetary and fiscal (budgetary, tax, debt) policy of the state, and also allows analyzing the change in the general financial policy of the state at different stages of the economic cycle is fair:

$$TP + MF + BF = Bn + Ep + Edebt + Ex, \quad (3)$$

Various sources (TP + MF + BF) can be used to solve the tasks of socio-economic development (Vp + Ep + Edebt + Ex), that is, tax revenues and monetary financing as the state's own internal sources of financial support and debt financing, which involves the involvement of external sources financial resources. Various tools can be used to attract certain sources of financing, which in aggregate is characteristic of the corresponding type of budget policy.

Discretionary stimulus fiscal policy is applied during a crisis, which is accompanied by an increase in the state budget deficit due to an increase in public expenditures through public procurement, additional social and investment-oriented transfers, while simultaneously reducing the tax burden by reducing tax rates and increasing various tax benefits, which stimulates the growth of aggregate demand. The implementation of such a policy is aimed at reducing the negative consequences of the phase of decline and depression in the economy. The stimulating effect is manifested due to the activation of aggregate demand, since both the reduction of taxes and the increase of social transfers to the population lead to an increase in household funds that can be spent on current consumption. An increase in public procurement also expands the demand for goods and services and increases employment. Stimulating fiscal policy measures are not able to fully stabilize the level of national income, but may cause the opposite reaction - destabilizing the economy, due to the uncertainty of forecasts regarding the prolongation of the crisis in time.

The application of discretionary stimulating (expansive) or restraining (restrictive) fiscal policy is determined by the priorities and tasks of the corresponding stage of implementation of the strategy of socio-economic development of the state, such as the fight against demand inflation, ensuring a high level of employment, anti-crisis regulation, etc. In the modern world, discretionary stimulus (expansionary) fiscal policy is more typical for countries with a low level of economic development. Usually, such countries resort to stimulating import substitution in combination with curbing inflation. While in developed countries, on the contrary, they resort to curbing overproduction or excessive investment in certain sectors of the economy, applying measures of restraining fiscal policy [19].

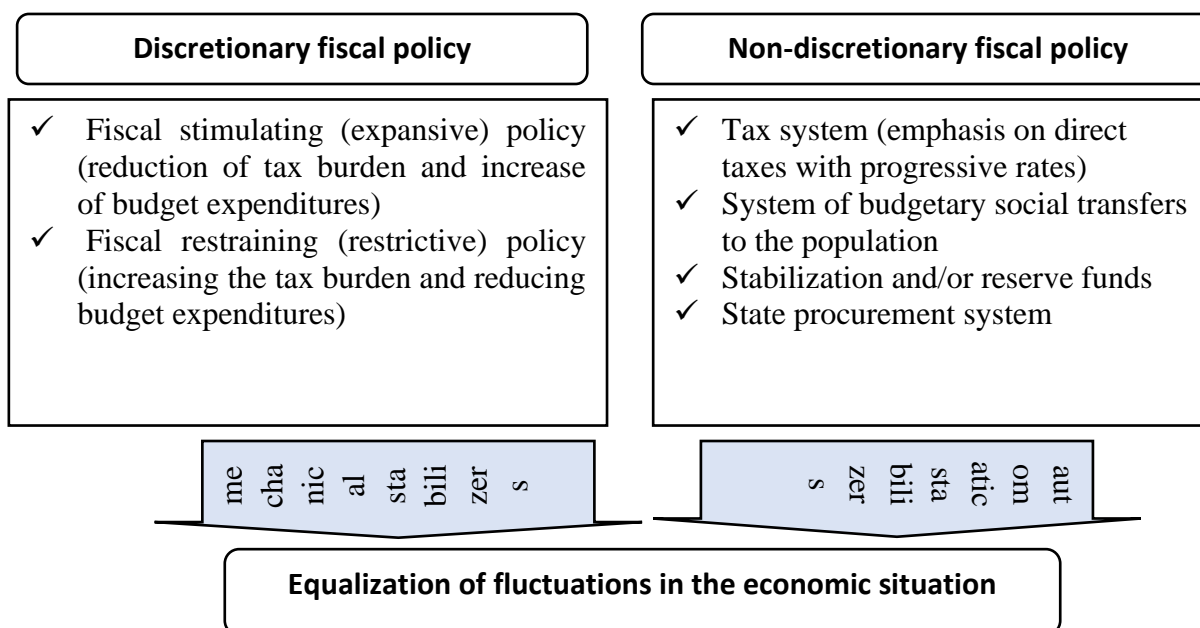


Fig. 1. Regulation of demand by fiscal policy measures

Non-discretionary fiscal policy involves the use of automatic stabilizers, which are the instruments of influence on reducing the amplitude of cyclical fluctuations in the production volume without using measures to change the government's economic policy. Automatic stabilizers can be represented by a progressive scale of income taxation, unemployment assistance, a system of state transfers, etc. During the upswing, the effect of automatic stabilizers will be manifested in taxation at increased rates of additional income and reduction of social benefits, such measures are manifested due to the lag of the growth rate of available income from the growth rate of GDP, thus restraining the growth of consumer demand. In crisis periods, automatic stabilizers allow to stimulate consumer demand. Thus, through the state transfers system, an increase in social assistance is provided with a simultaneous reduction in taxes, which makes it possible to mitigate the consequences of the crisis, to restrain the fall in production; the curtailment of investments will inevitably affect the production volumes reduction and, accordingly, incomes, however, the application of a lower tax rate partially compensates for the losses total volume.

Considering the budget policy as a component of the state's financial policy, we focus on its following features: it is determined by a set of measures to strengthen the revenue part of the state budget, strengthen the social orientation of budget expenditures, create conditions for macroeconomic stabilization; is aimed at optimizing and rationalizing the formation of income and the use of state financial resources through the budget system, increasing the efficiency of state investments in the economy, coordinating the interests of the state and regions in the field of inter-budgetary relations, regulating state debt and ensuring social justice in the redistribution of national income. The theoretical concept of the connection between the budget and budget policy is revealed through the ratio of base and superstructure – budget relations are the basis of budget policy and determine its content. Budget relations are objective (do not depend on consciousness), and budget policy is a product, a form of conscious activity of people. Budgetary policy cannot change the content of budgetary relations, besides it depends on the economy and affects it at the same time. The following conditions must be observed when formulating the budget policy: taking into account objective economic laws and patterns of social development; taking into account the current state of socio-economic development and existing stable trends in the country's development; taking into account the current stage of development of society as a civil society; taking into account factors of external influence, such as the state of the international financial and economic situation in view of globalization processes; introduction of positive experience of other countries; a comprehensive

approach to the formation of budget policy measures in an inextricable connection with monetary, currency, tax, tariff, customs policy, etc. [20 p.73].

The concept of budget policy is a principled system of views on the architecture of the construction of the country's budget system, on the priorities and directions of its development, which is formalized in a dialectical unity through the budget strategy (a set of fundamental perspective goals of the policy and principled ways of solving long-term tasks related to the construction or reform of the budget system of the country in line with the developed concept) and budget tactics (a set of current goals of budget policy and methods of solving short- and medium-term tasks related to the management of the budget system, improvement of its individual elements in accordance with the strategy). The task of budgetary tactics is to select optimal management decisions in a specific situation, for example, the choice of methods and tools of budget regulation in a specific period the budget system development. The budget strategy should establish the main directions of the policy and be aimed at the development of such economic levers that would be aimed at their implementation. The budget strategy of the state is aimed at the development of a budget mechanism that should ensure macroeconomic balance, long-term sustainable development of the economy in order to increase the welfare of the population and preserve the sovereignty of the state [21]. Budgetary policy requires legal formalization, i.e. legislative and regulatory acts, which will specify the volumes, forms and methods of budget formation as a fund of financial resources, forms of organization of inter-budgetary relations, methods and tools of budget financing taking into account the results of fiscal risk assessment. The formation of a scientifically based concept of budget development as a tool for regulating socio-economic processes is based on the results of studying the needs of the current social development state, a comprehensive analysis of the economic development state, the social sphere, global trends in socio-economic development, and the strategic priorities of the state. Achieving the above requires further ***improvement of budget policy in the following main directions***: creation of an effective system of management and regulation of budgetary resources; ensuring the effective functioning of the tax system, mobilization of budget revenues in the amounts determined in accordance with the requirements of tax legislation, improvement of the taxation system; fiscal risk management (including contingent liabilities and quasi-fiscal operations); formation of an effective system of budget expenditures aimed at stimulating economic growth, including investment activity (increasing the share of accumulation in the national income), reduction of non-productive expenses, budget subsidies; implementation of structural reforms in the social sphere; improvement of the budget process and streamlining of budget procedures; creation of a system of effective financial and budgetary control; reforming inter-budgetary relations in the direction of budgetary decentralization; ensuring effective management of public debt.

The issue of the appropriate level of GDP redistribution through the budget system and the public administration sector as a whole remains open. Economically developed states with strong civil society institutions can allow redistribution through the budget of significant amounts of GDP. For developing countries and transformation countries, the maintenance of high economic dynamics is associated with a reduction in the tax burden. The inverse relationship between economic growth and the share of GDP that is redistributed through the budget is characteristic of Ukraine in recent years. The share of revenues of the public administration sector in the GDP of Ukraine at the level of 44% (2020: revenues of the consolidated budget – 32.8% of GDP, revenues of the consolidated budget and the Pension Fund – 43.9% of GDP) is approximately within the limits of a number of developed countries: Germany – 39.1%, Norway 41.7%, Italy – 41.8%, Denmark – 51.6%, Japan – 27.8% and the USA – 27.6%. In view of the permanent deficit of the state budget of Ukraine (2020 – 5.2% of GDP), the share of state expenditures is significantly higher (2020: expenditures of the consolidated budget – 38%, expenditures of the consolidated budget and PFU – 49.5%). At the same time, Ukraine has not reached the high rates of economic development of the above-mentioned countries (the nominal GDP growth rate in 2020 is 5.5%). A significant level of GDP, which is mediated through the financial resources of the state, is evidence of an excessive redistributive function, overloading of the financial system with various forms of redistribution of resources, is

destructive for the development of macroeconomic processes [19, p.27]. New exogenous (Russian military aggression, financial assistance of the international community in favor of Ukraine) and endogenous (population migration, destruction of life support infrastructure as a result of the war) factors cause a significant change in the amount of resources redistributed through the budget.

For peacetime, given the target guidelines for economic growth, the theoretical basis for the expediency of increasing public spending can be considered Wagner's law (economic growth and social development as a whole should be accompanied by a constant increase in the share of public spending in GDP). Quite regularly, Wagner's law is tested by public finance researchers on statistical material from different countries using various econometric models. As a corrective limiter for the manifestation of Wagner's law, the so-called Arma-Rahn curve or BARS curve is used (it describes the dependence of economic growth rates and the share of public administration sector expenditures in GDP as a function). The BARS curve is a hypothetical curve of parabolic form, which has a characteristic maximum point (Scully point), and connects economic growth and the frequency of government spending in GDP. According to estimates of the impact of budgetary policy on economic growth, J. Scully identified a maximum point of 23% for the US economy (at the same time, in 2003, the share of public expenditures in the US was 35.7%, and in the EU countries 47.6%), noting it as dynamic (that is, as corresponding to the maximum growth rate of GDP, not the absolute value of GDP). In order to estimate the level of the share of public expenditures, the excess of which will lead to a decrease in the absolute value of GDP, the Scully static point is used (it is not recommended to go beyond the static point). According to econometric calculations for different countries, the static points are 5–6% larger than the dynamic points of Scully (this is the range of state regulation, which separates the policy of ensuring the maximum rates of economic growth from the recession regime). From a theoretical point of view, the BARS curve has an analogue in the field of state revenues - the Laffer production curve. Both curves have different modifications, but have a parabolic shape with maximum points; characterize the two sides of budget policy (revenue or tax policy and government expenditure policy). Thus, at certain stages of development, the growth of the share of public expenditure in GDP stimulates the acceleration of GDP growth, at other stages, on the contrary, it leads to inhibition of GDP growth.

Based on the estimates of domestic analysts, the optimal size of the state expenditures share to GDP is 35% – 37%, which is almost 10% less than the actual size of the public administration sector expenditures share for Ukraine. Experts of the CASE Ukraine Center for Socio-Economic Research determine the optimal level of the ratio of government expenditures to GDP of 35.1% (estimated optimum of budget expenditures 26%; 9.1% – additional expenditures due to the increase in pension needs due to the high share of pensioners in the population structure) [22]. This estimate is close to the earlier estimates by P. Kukhta and I. Piontkivska, who determined the optimal level of public spending in Ukraine at 37.5% of GDP [23], and V. Dubrovskiy and V. Cherkashyn, who believe that the share of government spending should be reduced to "more than 33% of GDP" [24]. Thus, Ukraine's losses from excessive expenditures of the public administration sector are estimated by analysts at 2.7% of economic growth per year. Investigating the relationship between different categories of the budget and inflation, A. Vdovychenko [25] notes that "budget expenditures generally exert greater inflationary pressure on the economy than taxes. In particular, the biggest inflationary pressure on the economy is caused by shocks of expenditure on the payment of wages in the public sector of the economy, as well as personal income taxation.

The existence of a multiplicative effect of state expenditures (budgetary expenditures, some types of investments, exports) on production volumes has been theoretically proven. For analytical assessment, the expenditure multiplier is used, which is defined as the ratio of the change in the equilibrium volume of gross income to the change in a certain component of costs. The multiplier shows how many times the total increase (decrease) in total income exceeds the initial increase (decrease) in autonomous costs. It is important that a one-time change in any expenditure component generates a multiple change in GDP.

Table 1.

Dynamics of budget indicators for 2015-2020

	2014	2015	2016	2017	2018	2019	2020
revenues of the consolidated budget, UAH billion	456,07	652,03	782,75	1016,79	1184,28	1289,78	1376,66
expenditures of the consolidated budget, UAH billion	523,12	679,87	835,59	1056,76	1250,17	1370,11	1595,29
State debt (+ guaranteed), UAH billion	1100,83	1572,18	1929,76	2141,69	2168,63	1998,17	2558,52
state budget deficit, UAH billion	-78,05	-45,167	-70,13	-47,85	-59,25	-78,05	-
Nominal GDP, UAH billion	1566,73	1979,46	2383,18	2982,92	3558,71	3974,56	4194,1
Real GDP, UAH billion	1365,1	1430,29	2034,4	2445,59	3083,41	3675,73	3818,46
Debt/Nominal GDP, %	70,26	79,42	80,97	71,80	60,94	50,27	61,00
deficit/ Nominal GDP, %	4,98	2,28	2,94	1,60	1,66	1,96	5,18
debt service/state budget expenditures, %	11,86	15,05	14,22	13,28	11,80	11,18	9,37
rate of income growth		1,430	1,200	1,299	1,165	1,089	1,067
rate of expenses growth		1,300	1,229	1,265	1,183	1,096	1,164
rate of public debt growth		1,428	1,227	1,11	1,013	0,921	1,28
rate of Real GDP growth		1,048	1,422	1,202	1,261	1,192	1,039
rate Nominal GDP growth		1,263	1,204	1,252	1,193	1,117	1,055
Δ Nominal GDP/ Δ Expenses (multiplier by expenses)		2,633	2,593	2,712	2,977	3,467	0,975
Δ Nominal GDP/ Δ income (multiplier by income)		2,106	3,088	2,563	3,438	3,942	2,527

Applying this approach when studying indicators of the consolidated budget of Ukraine and GDP, we have, according to estimates, a multiplier for budget expenditures at the level of 2.63 (2014) to 3.47 (2019) and up to 0.97 (2020). The obtained multipliers for aggregated budget expenditures correspond to the results of studies conducted for Ukraine in 2015, which determine the cumulative multiplier of expenditures at the level of 2.9 [26]. Rather low values (less than 1) are typical for developing countries. The factors that determine the differences in the estimates results are the peculiarities of the public expenditures formation as a variable for analysis, a different sample of data for analysis, as well as the peculiarities of the practical manifestation of domestic fiscal policy at different stages. Multipliers for consolidated budget revenues fluctuate at the level of 2.1–2.5 (2015–2020), with the exception of 2018 and 2019 for which the value is at the level of 3.4–3.9. Multipliers reach their maximum values during recessions (decline in economic development). For Ukraine, the peak values of multipliers in 2019 confirm the state when the economy is below its usual level of development. After exiting the recession, the economy should move upward again, and may even reach a level higher than it was before the economic downturn.

Fiscal policy in Ukraine is, in fact, discretionary, with characteristic countercyclical indicators (indicative indicators that increase during the stages of crisis and depression and decrease during the

stages of recovery and recovery: interbudgetary transfers, social transfers, state budget deficit, net exports, changes in stocks of tangible working capital, unemployment rate). It is possible to agree with the assessments of Ya. Petrakov regarding the discretionary focus of fiscal policy [27] and at the same time focus on its rather sharp changes in 2019-2020. Thus, in 2020 the government and parliament allowed budget expenditures to increase by 16.4%, with incomes growing by 6.7% due to the slowdown in the economy: growth in nominal GDP by 5.5% and real GDP by only 3.9%. As a perceived result of such a policy, a significant increase in the state budget deficit (almost 3 times) and the crossing of the conditionally safe limit (3% of GDP)– 5.18% of GDP. The public debt in the period 2015-2019 had a tendency to decrease both in absolute terms and in relative terms (as a share of GDP), and in 2020 adds almost a third compared to 2019. and safety indicators are again sharply deteriorating (61% of GDP against the normative level of 40%). Expenditures related to servicing the state debt make up almost 10% of state budget expenditures. Thus, we have a situation where the attention of subjects of the public administration sector is focused on the issues: how to get funds for debt service (increase taxes or expand borrowing), and the development of the real economy and social security of citizens (expenditure on education, health care etc.) recede into the background. The question of the presence or absence of a corruption component in the motivation of the public administration sector subjects when forming a set of regulatory instruments is beyond the scope of this study. Taking into account the experience of developed countries, the reform of the sphere of public expenditures and the taxation system in Ukraine should be integrated into a large-scale program for the implementation of structural reforms (especially in the educational, medical sectors and the pension system), the restoration of long-term labor productivity and the creation of attractive conditions for non-speculative investments).

Monetary policy is defined as a state policy through which a state-authorized institution controls the volume of money supply in order to establish price stability, promote economic growth, and maintain the level of unemployment at a low level. The priority of monetary policy is to achieve and ensure price stability (low and stable inflation rates), which protects household incomes and savings from depreciation, stimulates long-term investments in the economy, which contributes to the creation of jobs. Monetary and credit policy is reduced to economic regulation through the mechanisms of changing the supply (mass) of money and its price (interest) on the money market. An increase in the money supply, other things being equal, leads to a decrease in interest and an increase in investments, as well as an increase in solvent demand in the markets. All this in short time intervals revives the market situation and strengthens the incentives to expand production.

Under an expansionary policy, an arbitrary increase in the money supply is allowed, the consequence of which is inflation, growing rapidly. Under the policy of monetary and credit restriction, a rapid, insufficiently measured reduction in the money supply is allowed, the aggregate demand is reduced, provoking a decrease in the price level and a drop in economic activity and deflation. Monetary and credit policy has its own goals and tools, which are determined adequately to the nature of the mechanism of economic regulation.

The main principles of monetary policy determine the performance indicators of the National Bank in the medium term to achieve the legally defined goals [28]. According to the Constitution of Ukraine, the main function of the NBU is to ensure the stability of the monetary unit of Ukraine, taking into account the priorities of achieving and maintaining price stability in the state. The implementation of monetary policy is aimed at the gradual reduction of inflation rates and should ensure the achievement of the medium-term inflation target of 5% with a permissible range of deviations of $\pm 1\%$. It happens that under the influence of certain factors, in particular, not related to the activities of the central bank, inflation deviates from the declared reference point. In this case, the main thing is that the public and investors know what to expect from the central bank, understand that monetary policy ("expensive/cheap money") will be aimed at returning inflation to the target, which will eventually be reached. Confidence in this contributes to the fact that the future inflation expected by citizens and businesses (inflation expectations) is close to the target set by the central bank. Inflationary expectations affect investment and savings decisions, affect the level of

confidence in the hryvnia, which in turn should stimulate the transition to long-term investment and positively reflect economic growth.

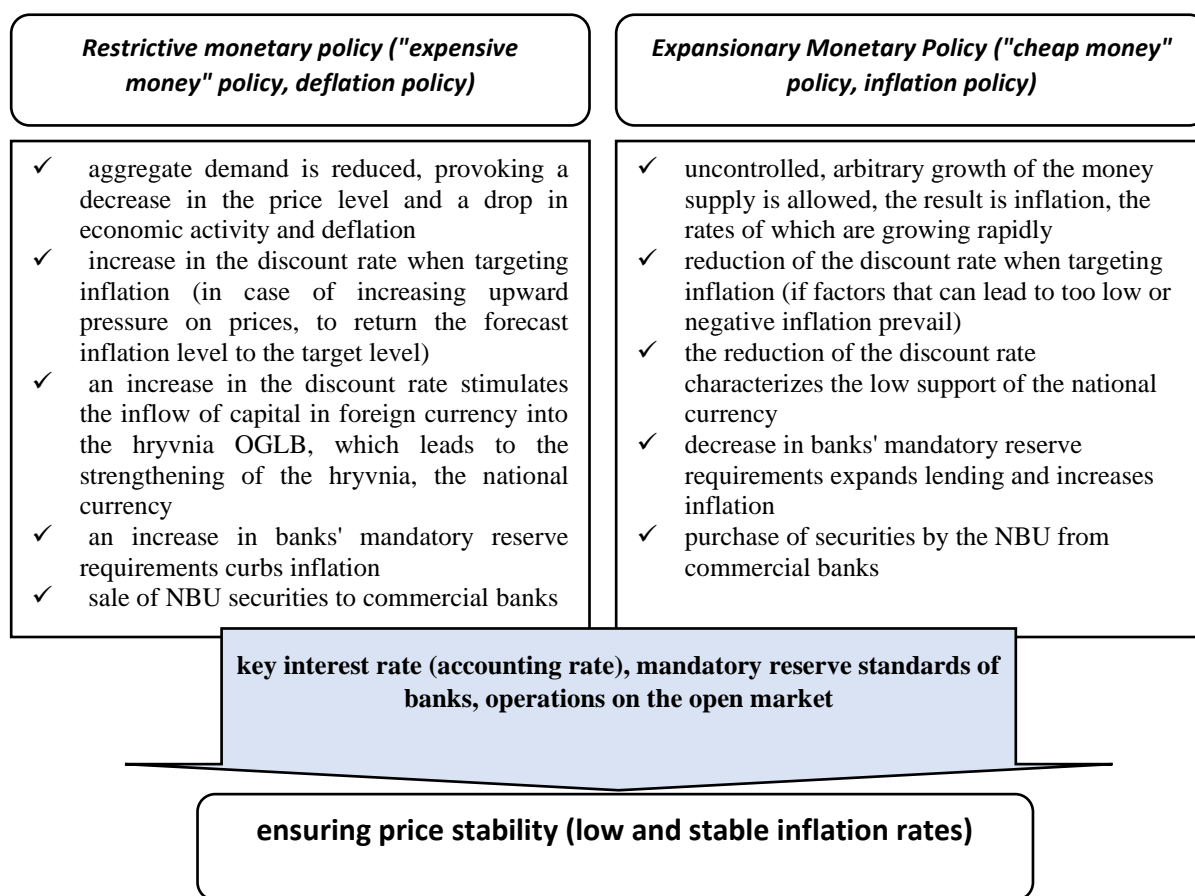


Fig. 2. Regulation of demand by monetary policy measures

The medium-term inflation target is approved by the Monetary Policy Strategy of the National Bank of Ukraine [29] and can only be revised downwards as economic development progresses. Since the central bank has no direct influence on prices, and monetary transmission occurs with some delay in time, monetary policy is always forward-looking. When making monetary decisions, the National Bank focuses on the inflation forecast. In case of upward pressure on prices, the NBU raises the discount rate, thus implementing the policy of "expensive money", which is necessary to return the forecast inflation level to the target. Conversely, it lowers the discount rate due to the prevalence of factors that may lead to too low or negative inflation. So inflation should always approach the target over the forecast horizon.

The main principles of monetary policy indicate the goals and features of the use of the instrument, determine the macroeconomic context of its implementation. For the successful functioning of the economy, central banks should pay attention not only to maintaining price stability, but also to issues of promoting financial stability. Legislation defines the appropriate goal for the National Bank, which is its second priority goal - to promote financial stability, including the stability of the banking system, provided that this does not prevent the achievement of the main goal. In the long term, the stability of the national monetary unit is impossible without ensuring sustainable economic development. In view of this, the third priority goal of the NBU is to promote the maintenance of sustainable rates of economic growth and support the Government's economic policy (provided that this does not prevent the achievement of the above-mentioned goals of the NBU).

The National Bank uses the inflation targeting regime (starting from 2016) based on a permanent medium-term inflation target. The essence of *the inflation targeting regime is the public*

announcement of quantitative inflation targets and the obligation of the central bank to achieve these targets over the medium term. The main monetary instrument and operational benchmark under such a monetary regime is the accounting interest rate. Decisions regarding monetary policy, in particular the accounting interest rate, are made taking into account the inflation forecast based on a comprehensive analysis and forecast of the state's macroeconomic, monetary and financial development. In general, an approach is used, according to which, if the projected inflation is above the target level, then the discount rate is increased to reduce it. Conversely, if the projected inflation rate is lower than the target level, the discount rate is reduced. By changing the rates for its operations with banks, the National Bank affects the conditions under which banks enter into agreements with each other on the money market, and thus the cost of short-term credit funds. Due to the mechanisms of capital flow between different sectors of the financial market, the value of short-term funds affects the interest rates of banks for credit and deposit operations with enterprises and the population, the exchange rate of the hryvnia, and the prices of other financial assets. This relationship between the discount rate and inflation is called the transmission mechanism. The transmission mechanism is exposed to external shocks (a sharp one-time change of one of the variables in the model), namely: financial (foreign interest rate, capital flows, risk premium); aggregate demand shocks (credit terms, external demand, raw material prices, fiscal policy); GDP (structural reforms, military conflict); inflation shocks (due to an increase in supply, non-daily harvest, indirect taxes, energy prices) [15, p.52]. When manipulating interest rates to influence the inflation indicator, the flexibility of inflation targeting (the ability of the central bank after a price shock to allow a longer return of inflation to the target to reduce GDP losses) is important. A rapid return of inflation to the target may generate additional volatility of the exchange rate, which will have a corresponding negative impact on economic growth (through foreign trade or changes in the balance of payments). As a result, by changing the interest rate, the National Bank indirectly influences such macroeconomic indicators as inflation and GDP. Monetary policy measures take time to affect the economy and affect inflation. Because of this, monetary policy is always forward-looking.

Change in the discount rate (03.2015 – 30%, 03.2016 – 22%, 03.2017 – 14%, 03.2018 – 17%, 03.2019 – 19%, 03.2020 – 10%, 03.2021 – 6.5%, 12.2021 – 9%, 01.2021 – 10% , 06.2021 – 25 %) affects the cost of servicing the public debt (budget expenditures for interest payments on DGLB (domestic government loan bonds) increase, the discount rate is a benchmark for determining the yield of bonds); affects the cost of credit resources (loans for business entities become unavailable due to high lending rates); affects the volume of credit resources (at a high discount rate, it becomes more profitable for commercial banks to invest a significant part of funds in NBU certificates of deposit than to lend to production, which reduces the supply of loans and increases their cost).

The main economic means and methods of monetary policy are the regulation of the volume of the money supply through: determination and regulation of mandatory reserve norms for banks; interest rate policy; refinancing of banks; management of gold and foreign exchange reserves; transactions with state securities (except for securities confirming corporate rights), including treasury obligations, on the open market; regulation of import and export of capital; introduction for a period of up to six months of the requirement for the mandatory sale of part of the proceeds in foreign currency; change of settlement terms for operations on export and import of goods; issuance of own debt obligations and transactions with them. The following monetary instruments are recognized as appropriate: the discount rate (as the main monetary instrument for returning the forecast inflation level to the target in the medium term and as an operational target for short-term interest rates on the interbank credit market); overnight interest rate corridor (to limit rate fluctuations for overnight credit and deposit operations of the interbank credit market); other instruments (refinancing tenders (if this does not entail risks for the banking system) and tenders for placement of certificates of deposit, repo operations, currency swaps, purchase and sale of government securities, etc.; mandatory reserve; long-term refinancing (for the purpose of hedging risks changes in liquidity conditions; for a term of up to five years with a floating rate, which at the same time helps to strengthen the interest channel of the monetary transmission mechanism). The

floating exchange rate regime is used by the central bank as an additional mechanism (in the process of improving the functioning of the foreign exchange market, significantly increasing its opportunities for balancing supply and demand), given that the achievement of a certain level or range of the exchange rate is not an objective of monetary policy. Currency interventions should be used for the purpose of: accumulation of international reserves; prejudice against sharp changes in the hryvnia exchange rate; maintaining the transmission of the key interest rate as the main instrument of monetary policy.

We can state that since the implementation of monetary reform, monetary policy in Ukraine is one of the key factors in overcoming crisis processes and achieving positive macroeconomic dynamics. Overcoming inflation can be successful if there is a harmonious combination of such tools as the discount rate and control over the emission and money supply (the entire set of money released into circulation - cash, non-cash, which at a certain moment is at the disposal of the subjects of monetary circulation [30, p. 174]) and the monetary base (the set liabilities of the National Bank in the national currency, which ensure the growth of monetary aggregates and lending to the economy; includes monetary funds issued by the NBU and hryvnia transfer deposits with the NBU). Depending on the decrease in the degree of liquidity, financial assets are grouped into different monetary aggregates, the NBU uses the following grouping according to special data dissemination standards: monetary aggregate M0 (includes cash in circulation outside deposit corporations); M1 (monetary aggregate M0 and transferable deposits in national currency); M2 (M1 and transfer deposits in foreign currency and other deposits); M3 or money supply (monetary aggregate M2 and securities, except shares). The monetary base is not a monetary aggregate, but serves as the basic foundation in the process of forming monetary aggregates.

Table 2

Dynamics of monetary indicators for 2015-2020

	2015	2016	2017	2018	2019	2020	2020/ 2015
M0, billion hryvnias	282,67	314,39	310,405	351,81	370,12	516,08	1,83
M1, UAH billion	472,22	529,63	551,463	624,231	759,77	1050,06	2,22
M2, UAH billion	993,81	1102,39	1129,464	1224,887	1462,45	1847,37	1,86
M3, UAH billion	994,06	1102,7	1208,86	1228,55	1465,64	1850,01	1,86
Monetary base, UAH billion	336	381,58	399,06	435,8	469,76	595,99	1,77
M3/GDP (monetisation), %	69,50	54,20	49,43	39,84	39,87	48,45	0,70
GDP/M3(circulation rate)	1,44	1,84	2,02	2,51	2,51	2,06	1,43
M3/MB multiplier)	2,96	2,89	3,03	2,82	3,12	3,10	1,05
inflation index, %	143,3	112,4	113,7	109,8	104,1	105	0,73
Real GDP, UAH billion	1430,29	2034,43	2445,587	3083,409	3675,73	3818,46	2,67

During the period of active inflation targeting practice (2015 - 2020), the monetary base almost doubled (by 1.77 times), the money supply (by 1.86 times), despite the fact that during this time real GDP increased by 2.67 times, inflation decreased by 27%. At the same time, it should be noted that although the structure of the money supply, its quantitative and qualitative characteristics are dynamically improving, the level of the Ukrainian economy security with means of payment leaves much to be desired. The monetization ratio (M3/GDP) tended to decrease by 2020 (from 69.5% to 39.9%), in 2020 it did not cross the 50% mark. For comparison, in the developed economies of the world, the monetization ratio is 70–80% [31]. Comparing inflation and monetization, it is possible to make an assumption about a constant shortage of money in circulation (the consumer price index has a tendency to decrease, and the volume of the money supply is

constantly growing) and the presence of crisis processes in the national economy. Analysis of the monetary aggregates structure in the M3 money supply (a large share of cash: M0 – 27%, a small volume of securities: M2 – almost 100%) confirms the low level of trust in the banking system and the underdevelopment of the stock market. The difference between the structure of the money supply of the Ukrainian economy and others lies in the fact that the volume of cash outside banks accounts for up to 30% of the total structure [32]. In the advanced economies of the world, this indicator is several orders of magnitude lower, in particular, the level of cash outside the banking system at the level of 5% of the M3 aggregate (4% – 7%) is considered acceptable for an effectively functioning market system. That is, there is a significant gap with other countries in the world in technologies and means of non-cash payments. The amount of cash in circulation (M0) increased by 39% in 2020 alone (reached UAH 516 billion). This trend is associated with the financial savings growth and demand for liquid assets due to uncertainties in the pandemic. However, the problem is not only the absolute value of the aggregate M0, but also its structure. In the structure of M0, a sufficiently large share of money is in foreign currencies (dollar, euro). This means that the functional purpose of this unit is not so much to serve the shadow sector of the economy as to accumulate unaccounted savings. The latter are a powerful investment source of the shadow economy, and therefore it can be seen as the largest financial reserve for the development of the economy, provided the level of shadowing is reduced. Another direction of optimizing the quality of the monetary mass in Ukraine should be its de-dollarization (the potential of transformation into a national monetary unit of means of payment and savings in foreign currencies, which are at the disposal of residents of Ukraine, should be used to the maximum extent). This will not only increase the supply of money and capital, but also save money on transaction (conversion) costs. Their supply in circulation and, in general, solvency demand depend on the change in the money circulation speed ($GDP/M3$ – the intensity of use of the stock of money necessary to pay for goods and services). Normatively sufficient is the situation when the monetary unit performs at least two rotations per year, so the indicator at the level of 2.06—2.51 is permissible.

The analysis of the money-credit multiplier in Ukraine over the past six years shows its relative stability (from 2.9 to 3.1), which should confirm the balanced and consistent policy of the NBU regarding control over the money supply. The money-credit multiplier is one of the important parameters of money circulation, which determines the ability of the banking system based on the monetary base to increase (multiply or multiply) the money supply in circulation. With its help, it is possible to monitor the dynamics, structure of the money supply and the level of inflation. The monetary and credit multiplier is defined as the ratio of the money supply (M3) to the monetary base (MB) for a certain period. Due to the money emission, the monetary base first increases, and later the money supply increases by the multiplier factor. However, the money that is formed thanks to the multiplication effect, the National Bank can form and control only indirectly through the instruments of mandatory regulations, since there is no direct influence on the desire of individuals and legal entities to open and increase bank deposits. Money generated due to the multiplication effect forms the main part of non-cash money and the money supply as a whole.

Comparing the value of the monetary multiplier and the multiplier of budget expenditures, it can be concluded that ***the budget policy tools in the sphere of supporting the branches of the economy of Ukraine for the purposes of economic development are more important than the monetary policy tools***. A significant degree of differentiation in the levels of effectiveness of monetary policy and budget policy can partly be explained by the fact that in the field of public administration sector finances, government support for enterprises or economic sectors is targeted. At the same time, monetary policy instruments affect the dynamics of the country's economic system relatively indirectly, through the mechanism of the financial market, which is imperfect in Ukraine. ***Under the condition of choosing the right directions for the use of public funds, it can be expected that the effectiveness of budget expenditures will be an order of magnitude higher than the effectiveness of monetary instruments***. Based on this, the extreme relevance of budget policy optimization in Ukraine for the purposes of effective social and economic development becomes clear.

The problem of servicing the public debt directly affects the investment potential of Ukraine. Thus, from the security point of view, it is considered expedient to change the structure of the state debt with a predominance of domestic debt, but in periods when there is a tendency to transform external debt into internal debt, there is a reduction in investments and ineffective tactics regarding the prospects of economic growth. The argumentation of such a position is based on the existence of the "crowd-out effect", which leads to the neglect of the investment needs of the real sector of the economy (in favor of improving indicators of debt security markers). In fact, they are forced out of the financial market not by market, but by administrative measures in favor of the needs of the state sector of the economy. Examples of artificial stimulation of demand for government bonds are well known. For example, the NBU's requirement to credit the sums directed by commercial banks for the purchase of DGLB bonds to mandatory insurance funds. At the same time, the central bank of the country itself, under the pressure of the government, neglects the performance of its direct functional duties. The National Bank through the banking system of Ukraine does not sufficiently support the real sector of the economy. Today, the NBU's priorities are more related to the sphere of public finances, and the latter, as we saw above, are not sufficiently aimed at supporting investment processes in the economy of Ukraine. That is, ***the process of economic growth in Ukraine is not adequately based on the action of the necessary fundamental factors, in particular, a harmonious combination of monetary and budgetary instruments, and therefore may not be long-lasting.*** We can conclude that the potential of monetary and budgetary factors of macroeconomic policy in Ukraine is not used and that there are reserves in the search for optimal ways of their interaction.

If we consider monetary emission as a means of saturating the economy with money, then this moment is most often associated with its use as a source of financing the budget deficit. In practice, this means that the government is using the last opportunity it can use to actually finance its spending in a recession or crisis as a factor in economic development. That is, we are talking about the government's deliberate formation of a negative budget balance (due to the expansion of state spending) and the financing of this deficit at the expense of money emission. The use of money emission to activate the economic situation and finance the budget deficit is one of the forms of taxation, i.e. an inflation tax - costs imposed by inflation on the owners of money, whose real funds lose their value as the price level rises.

The idea of financing the budget deficit through money emission was advocated by J. Keynes, although it is clear that he was not a supporter of ill-conceived government spending, which would result in a deficit. Keynes conducted his research during the Great Depression, when high unemployment and falling prices meant there was minimal risk of inflation with scarce financing. After Keynes's idea about the "benefit" of the budget deficit during a downturn in economic development was accepted by economists and politicians, deficit financing began to be used in more favorable moments of the economic situation. Thus, in the 1980s, the deficit of full employment in the USA exceeded 3% of GDP and was financed by emission. During hyperinflation in Germany, the government financed a deficit of 6–7% of GDP with an inflation tax, i.e. through inflationary money issuance. Today, the governments of some economically weak countries collect up to 5% of GDP as an inflation tax. As for Ukraine, it also has the experience of emission coverage of state expenses. Thus, the government used an inflation tax to finance the deficit in 1993 because the largest reduction in the real deficit in 1993 (63.9% in 1990 prices) was accompanied by the largest increase in the consumer price index (47.1%) and the largest increase money supply (17.2 times). She also emphasizes that the connection between the rate of inflation and the deficit mediated by the inflation tax can exist only as long as the increase in the rate of inflation precedes the reduction of money reserves of the population, because it is known that during the period of inflation the population tries to get rid of money reserves. When the rate of money reserves reduction begins to outpace the inflation rate, the inflation tax decreases and the deficit increases.

If we assume that the government, having increased the budget deficit, for example, to 3% of GDP, would finance it at the expense of additional emission, then as a result of such a policy, prices increased by an average of 27.3% per year. ***The impact of the emission method of financing the budget deficit has two aspects - long-term and short-term.*** The short-term emission of the money

supply makes it possible to activate investment processes in production and to receive additional revenues to the budget with the subsequent equalization of the money supply in circulation. Long-term emission of money supply to cover the budget deficit, as world experience shows, leads to destabilization of the economy, growth of money supply and prices, disruption of the balance between supply and demand.

The Budget Code contains a direct prohibition against the use of emissions as a source of budget financing (Part 2, Article 15 of the BCU)[33]. In general, the use of the emission method of financing the budget deficit only gives positive results if inflation is used as a means of restoring investment activity and revitalizing the reproductive processes of production. In global practice, in order to maintain the required level of investment activity in the event of a lack of domestic savings (in the absence of other sources of investment financing), emission financing of development investment programs is used quite widely. By issuing, the central bank tries to ensure the amount of money in circulation that is necessary to maintain the process of exchange of goods and services in the economy, taking into account forecast macroeconomic indicators (GDP, inflation, budget parameters, incomes of the population, etc.). The emission procedure is strictly regulated and is carried out by the central bank through *currency, stock and credit channels* and is ensured by receiving an equivalent amount of foreign currency or liquid financial instruments [34]. If necessary, withdrawal of money from circulation takes place through the same channels. Through the currency channel, money is issued/withdrawn through the NBU's operations on the purchase/sale of foreign currency on the interbank market. Through the stock channel, money is issued/withdrawn through the NBU's purchase/sale of government securities on the open market. Through the credit channel, money is issued through the NBU's support of banks' liquidity through refinancing mechanisms. At the same time, the funds are issued on a reverse basis against the appropriate security, which is provided by the NBU as collateral for a specified period (from 1 to 365 days, depending on the refinancing instrument), after which they are returned to the NBU and withdrawn from circulation. Cash money is released into circulation exclusively in exchange for non-cash money. This happens in the process of economic activity. When bank clients need cash, banks receive them from the NBU with a simultaneous debit of the equivalent amount of non-cash funds from their correspondent account.

In terms of its inflationary consequences, money emission for lending to state institutions of development, support of state-controlled investment programs differs from the practice of refinancing commercial banks (which use the received funds mainly for the purpose of expanding financial operations) by a smaller inflationary effect, since the speed of circulation in the first case is much lower than when there is support for speculative operations. A positive example of the application of emission financing of investment programs is the success of China and India, which maintained strict state control over monetary emission, and which was used to consistently increase investment activity through state development banks. But not only developing countries use non-market loans, developed countries also use monetary emission to support investment and overall economic activity, improve their financial systems, finance budget deficits and support population employment. This is proven by the practice of economic development in Japan, the USA, Great Britain, and France. It should be noted that the corresponding emission activity is implemented very carefully with the use of: development institutes; relevant banking technologies; stock market instruments; budgetary control mechanisms; careful analysis of the results of the inflationary consequences of various schemes for the organization of the money supply. For Ukraine, this path, in the absence of the specified mechanisms, is a very dangerous alternative. And therefore, ***in order to use emission funds, first of all, it is necessary to create the necessary network of development institutes in the relevant legal field and ensure the effectiveness of the control and analysis structures***. Failure to fulfill at least one of the listed conditions when introducing this mechanism will lead to the acceleration of the inflationary process and the consequences will be mostly negative. However, the adjustment of the emission model of the current monetary policy, according to which today the emission depends to a large extent on the external demand for Ukrainian export goods and, unfortunately, is not focused on the formation of long-term resources for economic

development, is becoming more and more relevant, given the declaration of the investment model – innovative development.

In the aspect of solving the problem of "long money", the internal mechanisms of monetary policy are extremely relevant, both from the point of view of the formation of the resource base itself, and the management of financial flows. Analysis of the monetary mechanisms of the leading countries shows that the main priority in the formation of resources in the economy is the budget, which determines the primary structure of financial flows. Thus, the formation of the monetary base of the national currency by the central banks in Japan and the USA (by 76% and, respectively, 88%) took place to fulfill budgetary tasks, as evidenced by the amount of government securities that are on the balance sheets of these banks. In other words, about 90% of all dollars in the world were issued as a result of financing various US budget programs (and then, as a result of multiplication, turned into the corresponding aggregates of the money supply). This principle of resource formation indicates the needs that determine the main direction of economic development, the main goals and objectives, and determines the policy of formation of "long" resources. As evidenced by the analysis of the balance sheets of the central banks of the leading countries of the world, the majority of the portfolio of securities consists of long-term instruments (for example, 60% of the portfolio of government securities of the Bank of Japan are papers with a maturity of more than 5 years), that is, already at the initial stage of credit issuance, the formation of investment potential for long-term economic growth.

The grouping of monetary policy measures according to individual models is conditional, under the influence of economic and political changes in the world there is a constant adjustment, but their application is quite convenient when studying the monetary policy of certain countries from the standpoint of influence on the stability of national monetary units. Thus, the set of tools and levers of monetary policy tentatively called the *"two-pillar model"* includes: monetary and inflation targeting by responding to deviations in the dynamics of money supply growth from announced inflation targets; change in interest rates for central bank operations, which as a result provides stimulation of aggregate demand and economic growth, reduction of unemployment; positive impact on the financial system through the development of the domestic market and the real sector; curbing inflation and ensuring financial stabilization; revitalization or restraint of economic growth rates and financial capabilities of the state (countries of application: Australia, Canada, New Zealand, Brazil, Chile, Mexico, Switzerland, Germany, Poland, Slovenia and most EU countries). Monetary policy with an *emphasis on currency stabilization* is aimed at the economic motivation and behavior of currency relations subjects; management of gold and foreign exchange reserves; organizational measures of central banks to implement special currency regimes with a view to achieving favorable foreign economic conditions for reproductive processes, forming an effective mechanism for the functioning and development of the domestic currency market, avoiding financial crises, ensuring macroeconomic and financial stability in the country as the basis of economic growth (Japan, Hong Kong, Argentina, Panama, Ecuador, Indonesia, Norway, Kazakhstan). *The credit-fund model of monetary policy* involves the use of such tools and measures as the purchase and sale of government securities on the open market (repo), exchange of securities, short- and long-term refinancing in order to support the liquidity of banks, selective credit policy, which ultimately allows to ensure implementation of the functions and tasks of the banking sector in the financial system of the state, increasing the efficiency of regulation of the money supply, mobilization and distribution of financial resources, ensuring the stability of banking activity and the money market, the possibility of forecasting inflation for the future (USA, China, England) [35]. Taking into account Brychka's proposed grouping of tools and levers of influence according to monetary policy models that are widespread in the world, we should outline the peculiarities of Ukrainian practice. The model of monetary policy that is being formed in Ukraine includes separate elements characteristic of different models, that is, it is *"mixed" in view of a certain similarity of the practice of recent years with the "model of two pillars" (in terms of introducing the inflation targeting regime and maintaining the transmission of the key interest rate as the main*

instrument) and credit fund (in the mechanisms of refinancing and carrying out repo operations).

We will try to give a brief description of the application of certain *tools, levers of influence, measures of monetary policy in the practical aspect of the real situation in Ukraine*. You can find out about the main directions of credit issuance by the NBU through the structure of issuance of payment means. An analysis of its dynamics for 1998–2002 indicates that the maintenance of banks' liquidity through refinancing mechanisms occupied an insignificant share in the structure of means of payment in circulation (6%–14%), and therefore the main priority of NBU credit issuance during this period was the formation of an official currency reserve (from 24% to 73%) and solving the state's debt problems using DGLB (rather than development programs) [36, p.474]. The structure of the monetary base and monetary aggregates in Ukraine, where a significant share is occupied by money of high liquidity, confirms that the character of the resources basic structure, which was formed, is short-term and does not contribute to the development of investment activity. One of the many reasons for this situation can be called the imperfection of the emission model, because in practice at the beginning of the 2000s, the hryvnia emission was carried out mainly under the purchase of foreign currency, which means that its volumes directly depended on the dynamics of the payments balance, and the emission mechanism almost not oriented to the internal demand of the real sector of the economy. In the 2000s and early 2010s, Ukraine actually applied an exchange rate targeting policy (the exchange rate of the national currency was fixed at a certain target level, and monetary policy measures helped to maintain this target). In the long term, when the gold and currency reserves were simply not enough to further support the hryvnia exchange rate in conditions of accumulated economic imbalances, the negatives of such an approach became apparent. For Ukraine, changing the emission model in the direction of creating a system under which the emission of money would actively respond to the demand of business entities for hryvnia resources means that the basis of a strong hryvnia is not only gold and foreign currency, but also commodity security. The use of money supply targeting mechanisms (the priority is to maintain a certain amount of money to ensure economic growth), which was characteristic of some central banks in the last century, is not characteristic of Ukrainian practice.

As mentioned above, in accordance with the monetary strategy, the NBU actively applies the mechanism of inflation targeting, i.e. the implementation of measures to change the **key interest rate (accounting rate)** depending on the deviation of the actual inflation indicators from the set goal – a normal level of inflation in the range of 5% (a tough policy involves increasing discount rate; soft policy – lowers the rate). In addition to the discount rate, interest rates in the real sector are affected by other factors, so the direct relationship between them is not proportional. Thus, during 2019, the NBU reduced the discount rate by 4.5% (from 18% per annum to 13.5%), and rates on time deposits in hryvnia lost only 1–2% per annum (from 16% to 14–15%). Decisions on the discount rate are made on the basis of an the real rate assessment (as the difference between the discount rate and the inflation rate), which is based on a comprehensive forecast of future inflation and is accompanied by a commentary on the macroeconomic situation and its prospects. In addition to inflation, the discount rate has a direct effect on the exchange rate. Apart from other factors, the lower the interest rate in a country, the less support the national currency has. Under the condition of globalized free movement of capital, the capital flow mechanism is activated – "hot money" moves in the direction of a higher rate, increases the demand for the local currency, and therefore strengthens its exchange rate. So, in 2019–2020 at high interest rates in Ukraine, there were significant inflows of foreign capital from investors in hryvnia OVDP (about 4 billion US dollars), which in turn became a decisive factor in the strengthening of the hryvnia.

In order to regulate the level of inflation and the currency structure, the **norms of mandatory reserves** (including in foreign currency) are used as a tool. Reserve norms are established as a mandatory percentage of customer funds (bank liabilities) that banks must reserve at the central bank. The higher the regulatory reserve rate, the less money banks have left to lend to the economy (a deterrent to inflation), and vice versa. In Ukraine, the NBU is trying to use this tool as a means of regulating the currency structure of bank balance sheets in order to reduce the "dollarization" of the

economy. Starting from March 2020, the National Bank of Ukraine set a reserve ratio of 0% for funds raised in hryvnia, and 10% in foreign currency. Thus, the NBU motivates banks to increase the volume of operations in the national currency, but makes it difficult for them to attract foreign currency deposits, as well as lending in foreign currency.

Another of the monetary instruments is *open market operations*, which are formalized through the purchase and sale of government securities (DGLB) by the National Bank and currency interventions. Since the balance sheet of the NBU after the crises of 2008 and 2009 and 2014–2015 accumulated DGLB in the amount of UAH 322 billion (or 31% of the total volume of DGLB as of April 8, 2021), then this tool is currently not actively used. The majority of DGLBs were issued on non-market terms (for the recapitalization of state banks, Naftogaz of Ukraine, etc.), and a significant total volume may become a threat to the securities market in the event of being put up for sale. The NBU actively intervenes in the foreign exchange market, which significantly affects the monetary and credit system. The NBU, as the largest player in the foreign exchange market in terms of volume and capabilities, which does not have the task of making a profit from foreign exchange transactions, enters the market to smooth out significant fluctuations, as well as to replenish gold and foreign exchange reserves. For the period from 2008 to 2020 almost UAH 370 billion were spent only on the support and rescue of banks. financial resources of the state: UAH 172.34 billion – state expenses for the nationalization of unprofitable private banks, which the government decided to transfer to state ownership for various reasons (including to prevent public panic); UAH 101 billion from the state budget was directed to the recapitalization of banks (actually to cover losses from dubious risks and politically motivated loans); UAH 97.3 billion – interest on DGLB, with which the government recapitalized state banks (almost 16 billion UAH annually, payments will continue for at least another 7 years). In view of the fact that the option of recapitalization of state-owned banks through direct issuance has an unconditional consequence of inflation, the government introduced the option of issuing new DGLB bonds. Until 2011, the NBU almost instantaneously bought such DGLB bonds from state banks, thus at the same time giving impetus to inflation, but now such actions are prohibited by law. You can compare the resources spent on supporting banks: adequate for two-thirds of all loans received by Ukraine from the IMF over the same 13 years (almost \$30 billion); 4–5 annual budgets for defense, more than 3 annual budgets for education. This information will additionally emphasize the mutual influence of budgetary and monetary processes.

Recently, another one has been added to the classic three main instruments of monetary policy — *the interest rate on bank reserves in the central bank*. In the conditions of extremely low and even sometimes negative interest rates in the world, such an instrument is attracting more and more attention, although it is somewhat similar to an interest rate instrument. The main difference between this tool and the classic interest rate tool is that the rate is set based on mandatory reserves, not voluntary transactions of banks with the central bank. In Ukraine, this instrument is formalized in NBU deposit certificates.

The discussion about monetary emission (the feasibility of a hard or soft monetary policy of the NBU) is conditioned by the formation of measures to restore the Ukrainian economy. As mentioned above, emission measures are carried out constantly, but they are different. The NBU, carrying out currency interventions on the foreign exchange market (buying foreign currency on the interbank foreign exchange market), conducts emission measures, and selling foreign currency (sterilization of the hryvnia) also conducts emission measures in the opposite direction. The term net emission of hryvnias or "net monetary emission" is used to denote the balance of emission flows. In the history of Ukraine, there were several periods of significant money emission (1990s, 2014, 2019, from February 2022).

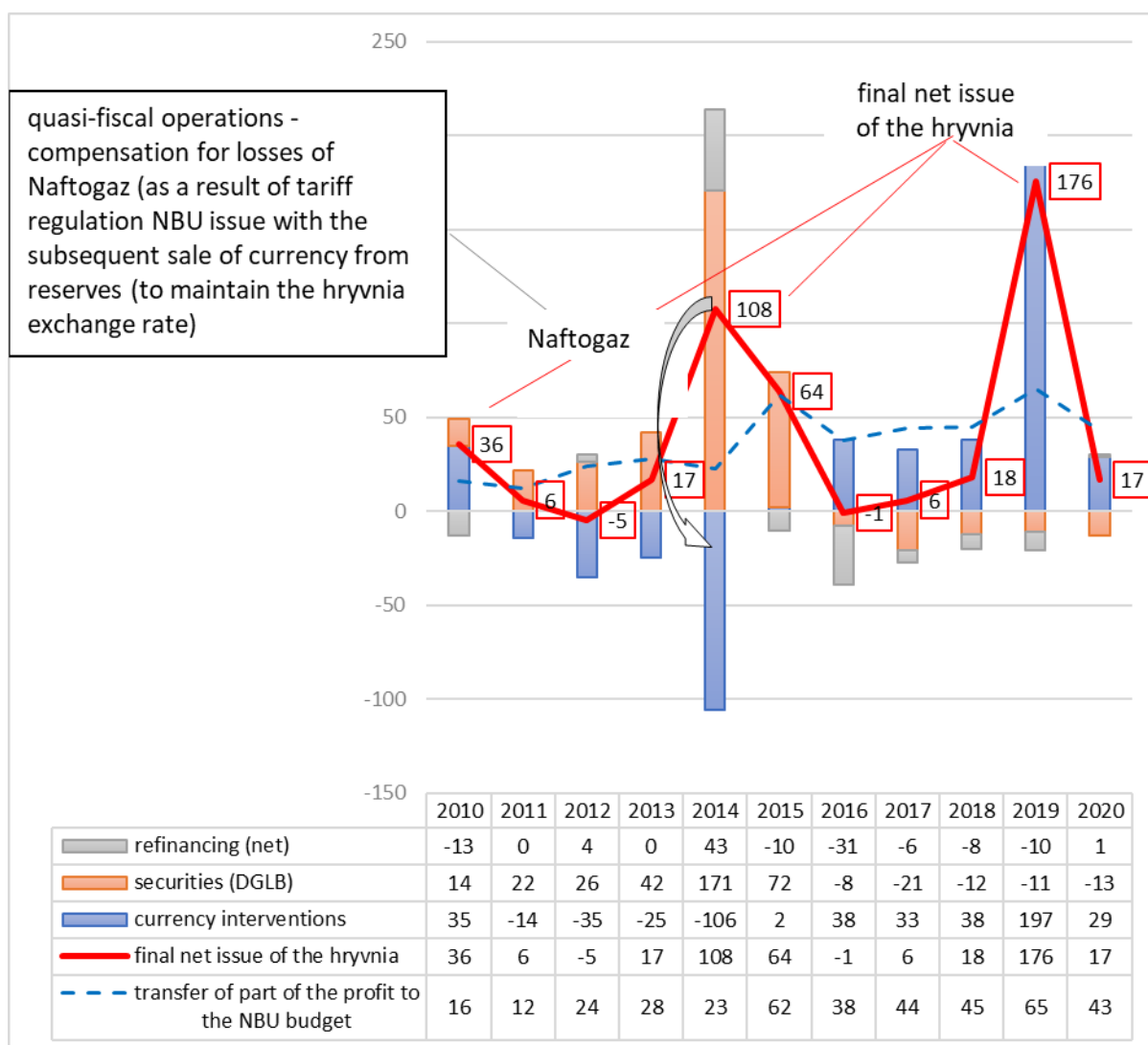


Fig. 3. Net monetary emission in Ukraine in 2010–2020
(excluding transactions with the Government)

In 2013, due to political and social factors, the state abandoned the forced revision of domestic natural gas prices, which led to significant losses of National Joint Stock Company "Naftogaz of Ukraine". Consciously assuming the fiscal risks of the largest economic entity of the state sector of the economy – National Joint Stock Company "Naftogaz of Ukraine", the state was forced to carry out appropriate quasi-fiscal operations, compensating the deficit of National Joint Stock Company "Naftogaz of Ukraine" at the expense of NBU issuance. The Central Bank was then itself forced to sell foreign currency from reserves in order to bind the issued funds for the import of natural gas. In the following year, 2014, this practice acquired gigantic volumes. In addition, during this period there were capital deficits of state-owned banks, caused both by deficiencies in risk management of active operations and by the presence of large problematic debts of borrowers (a significant portion of which is still not resolved). To solve this problem, the NBU conducted emission operations to capitalize state banks by issuing DGLB. Emission measures in 2014–2015 had the following characteristics: more than 250 billion UAH were issued to the economy through the mechanism of issuing DGLB, the NBU had to immediately sterilize part of the hryvnia through the sale of foreign currency equivalent to more than UAH 100 billion.

In 2019, other mechanisms were involved: – The NBU actively bought up currency on the market at the expense of almost UAH 197 billion printed (the funds were directed to the state budget through the budget deficit financing mechanism due to the issuance and placement of

hryvnia government bonds and the admission of foreign investors to the market); – in the opposite direction, the NBU withdrew a little more than UAH 20 billion from economic circulation through the mechanism of return by banks of refinancing and repayment of DGLBs that were in its portfolio; – the budget deficit was kept at a stable level of 2% of GDP (budgetary discipline was observed by state institutions, despite problems with the mobilization of revenues to the budget); - due to the stable budget deficit, the Ministry of Finance updated the debt strategy, introduced measures to attract funds from foreigners in the domestic market to reduce currency risk (allowing the possibility of their participation in the primary market of government bonds). The mass issuance of government bonds by the NBU, in turn, caused the money emission. As a result, macro-financial stability was achieved, the financial system was saturated with the hryvnia, and (relative) inflation slowed down. ***This is an example of a relatively successful practical implementation of the emissions policy, since a low fiscal deficit was ensured during its implementation.*** According to R. Shpek, the National Bank of Ukraine filled the economy with money through various emission mechanisms, at the same time there was a slowdown in inflation, strengthening of the hryvnia and macro-financial stability in general, which was due to a certain policy in the field of public finances [37].

The experience of conducting emission measures in Ukraine shows the possibility of an effective combination of a high level of emission and a significant level of budget deficit, without the formation of threats to macro-financial stability (see Fig. 4). Operations on the purchase and sale of government securities and the active use of certificates of deposit for mobilization measures, which today play a key role in the hryvnia emission process, are aimed mainly at solving the problems of financing the budget, and not the entire economy. To correct the situation for open market operations, not only DGLBs should be used, but also bonds issued by other banks and development institutes to finance investment projects (as is done by developed countries) using all instruments of supervision and control to block the possibility of misappropriation of funds (in particular, redirecting them to the foreign exchange market). Monetary emission by itself cannot serve as a source of economic growth, but the aggregate growth of credit investments and money supply must be limited taking into account the resource capabilities and needs of the national economy.

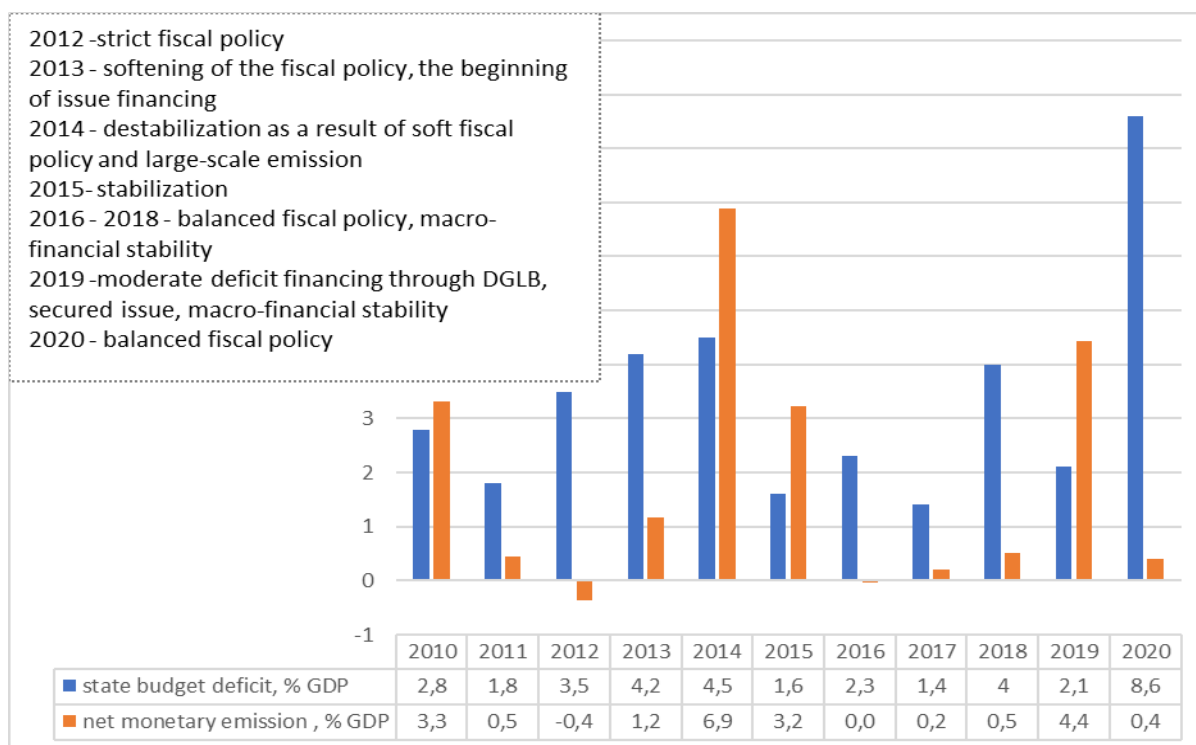


Fig.4. Monetary emission and deficit of the public finance sector in 2013–2020, % of GDP.

It is advisable to maximize the use of external sources of financing the budget deficit. Given the existence of a cooperation program with the IMF, proposed new programs from international financial organizations, the possibility of completing the investment projects started by development banks, the possibility of continuing the issuance of Eurobonds (taking into account the positive experience of placement in 2019-2020), the government has every chance to generate a surplus of foreign currency, with subsequent repurchase of its issue by the NBU directly through transactions with the Government. Such a secured emission mechanism will simultaneously allow the accumulation of gold and foreign exchange reserves, ensure the financing of state budget expenditures, and maintain macro-financial stability.

Ukraine, like other countries, expanded the budget deficit during the fight against the coronavirus, exceeding the recommended limit of 3% (2020 – 5.18% of GDP, 2021 plan – 4.8%, 2022 forecast – 3.3%) . Banks became the main investors in DGLB (UAH 536.7 billion, or 52% of the total volume of DGLB as of April 8, 2021), having financed part of the 2020 budget deficit given the government's limited access to external funding. 3 factors worked: free liquidity, moderate demand for loans and growth in the yield of government bonds, and refinancing of banks by the NBU. Banks' investment in DGLB did not limit or discourage the ability to lend to the economy. According to the results of the 2020 crisis, the costs of forming reserves for bank credit losses doubled, but generally remained moderate. And yet, the change in the principles and methods of bank support by the NBU - the activation of "long-term refinancing for 5 years to support liquidity" can be attributed to dubious decisions. Yes, from July 3, 2020 to June 23, 2021. the amount of refinancing of solvent banks by the NBU increased from 7 to UAH 83 billion. Most of the banks that received these funds did not have problems with liquidity. The main amounts of refinancing went to finance the state budget deficit (purchase by banks of DGLB) and lending to SE "Ukravtodor" (purchase by the bank of additional bond issues of the State Highway Agency of Ukraine).

The current practice of most central banks during the development and implementation of monetary policy is focused on ensuring the stability of national monetary units and the implementation of monetary regimes based on maintaining price stability. ***The main criteria that confirm the effectiveness of monetary and budgetary policy coordination in the direction of ensuring price stability and economic growth*** include the following:

- low level of inflationary expectations of economic subjects or their downward trend;
- reduction in demand for foreign currency on the cash foreign exchange market;
- low and stable level of core inflation;
- change in the structure of money emission in favor of the credit channel;
- reduction of the NBU currency interventions.

Ensuring price stability is a rather complex task that requires the NBU and the Government to make coordinated and complex decisions regarding the coordination of budgetary and monetary policy. So, according to Art. 6 of the Law of Ukraine "On the National Bank of Ukraine", the NBU in performing its main function must be guided by the priority of achieving and maintaining price stability in the state, while Art. 2 of the Law of Ukraine "On the Cabinet of Ministers of Ukraine" defines that one of the main tasks of the Government is to ensure the implementation of price policy.

Budgetary and monetary policy coordination should be based on the principle of complementarity (complementarity) of the tools and methods used for their implementation in order to manage the level of inflation, the state budget deficit and maintain the sustainability of the state debt. According to this principle, separate areas of economic policy and activities of relevant state institutions should be based on unified approaches, unified methodology and take into account general macroeconomic goals.

The development of the principles and mechanisms of coordination of the monetary-credit, budget-tax and debt policy of the state should be carried out on the basis of a clear definition of the responsibility of individual state authorities, the terms and conditions of the planned activities. Strengthening the sovereignty of the NBU in the conduct of monetary policy, while simultaneously

improving the coordination of its efforts with the actions of the government to implement long-term development programs, is the basis for the monetary regulator to solve two tasks: tactical – leveling out sharp changes in the exchange rate and money supply, and strategic – stimulating the stable, balanced development of the national economy. In addition, important factors are increasing the level of transparency of budgetary and monetary policy and expanding the spheres of communications with a wide range of the public. Taking into account the fact that the monetary policy of the National Bank only creates the necessary conditions for the development of the economy of Ukraine, but cannot itself be a sufficient prerequisite for a sustainable increase in economic potential, it is critically important to carry out further structural reforms and maintain a balanced fiscal policy. An important element of such coordination will remain the implementation of the provisions of the Memorandum between the Cabinet of Ministers of Ukraine and the National Bank of Ukraine on cooperation aimed at achieving sustainable economic growth and price stability. The Cabinet of Ministers of Ukraine, together with the National Bank and other regulators of the financial sector, will cooperate to improve the functioning of the financial intermediation institute, including by coordinating work within the framework of the Financial Stability Council.

In view of the Government's competences regarding the regulation of inflation and the stability of the monetary unit, the correction of administratively regulated prices and tariffs and the implementation of budget policy as a component of the economy are important directions, therefore the coordination of the monetary policy of the National Bank and the budget policy of the Government is necessary. In view of the declared positions [38], coordination of monetary and budget policy should cover the following issues: creation of macroeconomic conditions for low and stable inflation; the controlled influence on the state of the money market of the issuance of internal obligations of the government; dynamics and structures of budget expenditures; ensuring the stability of the financial system as a whole.

Threats to the financial stability of the post-war budget and coordinated measures of budgetary and monetary policy. The active phase of Russian military aggression is a significant factor in increasing the debt burden of Ukraine's budget, reducing the possibility of debt refinancing at the expense of internal resources, and, accordingly, the need to restructure external public debt. As a result of large-scale aggression, displacement of population and production, destruction of industrial and social infrastructure, there is a catastrophic drop in GDP. The reduction of GDP and the receipt of a significant amount of financial assistance from the EU countries, the USA, Great Britain, and international financial institutions are factors in the growth of the projected value of the state and guaranteed debt in Ukraine. The IMF predicts a 35% drop in Ukraine's economy in 2022, and the state debt may reach 93% of GDP [39]. According to the Government's forecasts, the amount of public debt in 2023 can exceed GDP volumes [1].

Let's outline some points regarding indicators of financial stability of the budget system for 2023. By the government when forming the state budget project for 2023. [2] the budget deficit is predicted at the level of 20% of GDP (in the amount of 1 trillion 279.8 billion UAH), which is 6.7 times higher than the one established in Part 1 of Art. 14 BKU border (3 %). The deficit of the general fund should increase due to the expected increase in expenditures with a decrease in income, and the deficit of the special fund due to an increase in the receipts of credits (loans) from foreign countries, financial institutions and international financial organizations (IFI0) for the implementation of investment projects. Financing of the state budget deficit and repayment of debts in the stipulated terms are proposed primarily at the expense of new state borrowings. The volumes of state borrowings are increasing significantly, which is due to the increase in expenditures, the decrease in revenues due to the military aggression against Ukraine (borrowing from the financial resources of the budget accounts for 56.4%, according to the structure, external state borrowings account for 95%).

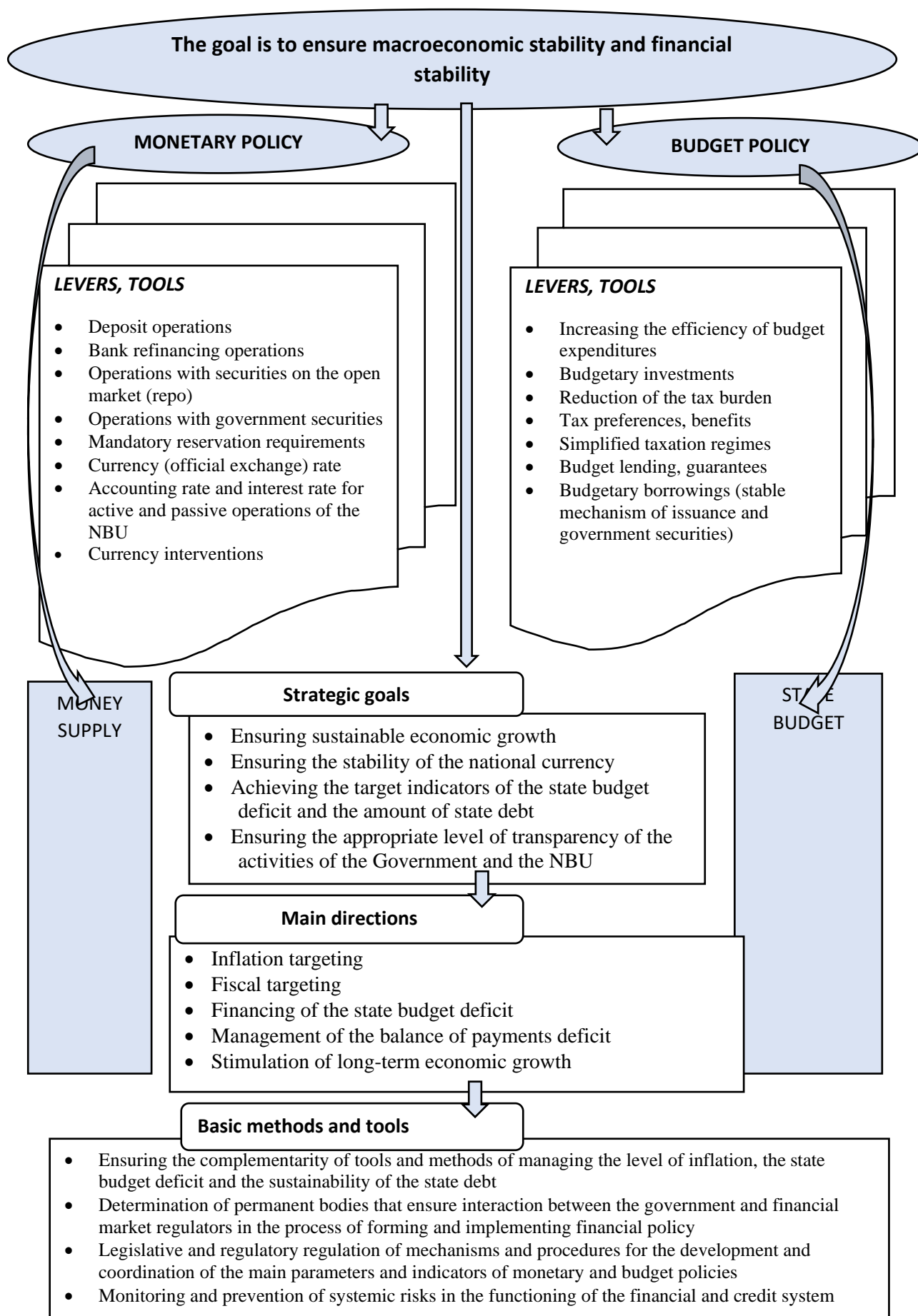


Fig. 5. Architecture of monetary and budget policy coordination

The further dynamics of borrowing is connected with the continuation of cooperation with the International Monetary Fund and other creditors (it is planned to attract to the general fund – UAH 633 billion from the IMF, the US Government and other official creditors – UAH 576 billion, the EU – UAH 217.1 billion at a rate of 3%; to the special fund – in the amount of UAH 170 billion (the amount will depend on the state of preparation and implementation of investment projects), of which from: the Government of the United Kingdom of Great Britain and Northern Ireland - UAH 99.5 billion; the EIB – UAH 36.6 billion; the International Bank for Reconstruction and Development - UAH 12.5 billion; EBRD – UAH 9.6 billion; Government of the French Republic – UAH 6.8 billion). On the domestic market, UAH 90.7 billion (88.6% less than in 2022) is expected to be received from the placement of DGLB bonds both in hryvnia and in foreign currency with a forecast weighted average interest rate of 16.8%. Inflow of funds is directly dependent on investor demand for DGLB.

The draft law provides for the suspension of the restrictive norms of the Budget Code regarding indicators of the budget deficit (Article 14 of the BCU), state and state-guaranteed debt (Article 18 of the BCU). It is projected that the state debt will double by the end of 2023 compared to the current state as of August 31, 2022. According to the Accounting Chamber [40], the factors of the increase in the state debt in 2023, compared to the current state as of 08/31/2022, are: the excess of state borrowings over the planned expenses for repayment of the state debt - UAH 1.9 trillion; devaluation of the hryvnia against the foreign currencies in which the debt is denominated, provided by the Government, is by 1.3 trillion hryvnias.

There are significant *risks of increasing the state debt* as a result of possible:

- overscheduled issuance of DGLB to support the banking system with an adjustment of its maximum volume (a possible deficit of FGVFO funds in the amount of UAH 3.5 billion);
- an excess, compared to the provisions of the draft law, of the receipts of credits (loans) raised by the state from foreign states, foreign financial institutions and MFIs for the implementation of investment projects ;
- execution of transactions with state derivatives at the expense of overscheduled state borrowings (risks of non-payment of state borrowings, in particular external ones, as stated in the Information on fiscal risks (including contingent liabilities and quasi-fiscal operations) have an impact on the state budget indicators; this "may lead to insufficient amount of funds to finance the deficit of the state budget and to restore the destroyed infrastructure");
- replacement of shortfalls from the privatization of state property with state borrowing (the main factor influencing the receipt of funds from the privatization of state property is the lack of demand for privatization objects due to the deterioration of the investment climate in the country as a result of the Russian invasion and hostilities, which, in turn, will lead to an increase in state borrowing and the volume of state debt and expenses for its servicing; in order to speed up and adapt privatization processes during the period of martial law, the VRU adopted Law of Ukraine dated 07.28.2022 No. 2468 "On Amendments to Certain Legislative Acts of Ukraine on Facilitating Relocation Processes" enterprises in the conditions of martial law and economic recovery of the state", which provides for: a significant reduction in the terms of conducting privatization auctions and preparing objects (no more than 2 months from the announcement to the signing of the contract); unblocking the privatization of state-owned enterprises with arrests and encumbrances of property from overnight preservation of creditors' rights; privatization of large facilities is planned (PJSC "Centrenergo", SE "Coal Company "Krasnolymanska", JSC "United Mining and Chemical Company");
- unplanned devaluation of the hryvnia against foreign currencies (the share of foreign currency-denominated debt vulnerable to currency fluctuations was 66.5% as of 08/31/2022);
- not establishing the limits of state-guaranteed debt and providing state guarantees (proposals to stop the operation in 2023 of the norms of Article 18 of the BCU regarding the safe debt limit of 60% of GDP are motivated in view of the following – a plan of measures to reduce the

total amount of state debt and state-guaranteed debt to the established requirements "will be carried out after the end of the war and the restoration of the country's economy").

Estimated payments for repayment and servicing of state and state-guaranteed debt in 2023 will account for more than $\frac{1}{4}$ of all state budget expenditures; every fourth hryvnia of state budget revenues will be directed to debt servicing (provided that service expenditures increase (by 78.3%) while revenues decrease (by 17.6%).

In order to restore Ukraine's debt sustainability and eliminate the problems of financing deficit in the conditions of war and post-war recovery, it is advisable to apply the mechanisms and instruments of the restructuring of the public debt, namely:

- the introduction of a new debt strategy of Ukraine, in which it is necessary to foresee methods of easing the debt burden (freezing, restructuring/write-off of the public debt) and tools for optimizing the management of the public debt from the point of view of the ratio of service costs and risks;

- approval of more complex mechanisms related to MFI loans and Eurobond loans, given political support from international partners to guarantee immunity from default for the government;

- adaptation of HIPC-Initiative and MDR-Initiative debt relief financial instruments to Ukrainian parameters; according to experts, the proposed scenario - writing off 80% of the debt will reduce the external debt by \$47 billion [41];

- introduction of the IMF and World Bank mechanism through the Resilience and Sustainability Trust;

- debt restructuring under bond loans with the application of discounts (haircuts) to the nominal amount of the debt, or the current discounted value of debt payments (similar to the Brady plan, the exchange of foreign loan bonds for new securities with a discount of 50–60% to the nominal value of the primary bonds); this approach will allow the Government to *reduce the amount owed on foreign loan bonds by \$12-14 billion*;

- introduction of debt swaps in exchange for financing targeted programs for environmental protection and increasing resilience to climate change (debt-for-climate swaps).

The specified measures of debt restructuring have found practical application by world and European financial institutions and are appropriate for Ukraine. Restoring the country's debt sustainability is a component of restoring the financial stability of the budget system, which in turn will contribute to the restoration of macroeconomic stability without the use of shock inflation tools.

The research is an attempt to assess the complementarity of budgetary and monetary policy instruments and measures in the context of achieving macroeconomic stability.

The review of scientific positions on the essence of fiscal policy made it possible to justify the expediency of singling out budget policy as a set of specific measures and tools aimed at financing expenditures according to established priorities in volumes sufficient to achieve the set socio-economic goals of society, taking into account the possible sources of filling budgets at different levels; tax and debt policy is subordinated to the solution of budget policy tasks. The study of the essence of the manifestation of the regulatory mechanisms of budgetary and monetary policy, given the need to achieve macroeconomic stability, made it possible to formulate the main issues that require agreement on implementation tools; coordination of current activities by authorized bodies; relations between the government and the National Bank as its internal creditor; regarding debt policy; liquidity management measures.

In order to substantiate the selection of budgetary policy tools (stimulating, restraining, neutral), it is proposed to rely on the macroeconomic dependence between indicators that are related to the main tasks of socio-economic development (the volume of expenditures of the public administration sector; the volume of transfers to the private sector, including social transfers; expenses related to the state debt; net exports, as a result of foreign economic activity) and possible sources of their financing (taxes and monetary financing as the state's own internal sources of

financial support and debt financing, which involves attracting external sources of financial resources).

In view of the theoretical provisions of A. Wagner's law (regarding the dependence of economic growth and the growth of the share of public expenditures in GDP); limitations of its manifestation, which are described by the BARS curve (as a function of the dependence of economic growth rates and the share of public administration sector expenditures in GDP); multiplier effect, which gives an increase in public expenditures on GDP growth, and based on econometric calculations, a significant deviation of the actual size of the share of public administration sector expenditures in GDP (almost 10%%) from the optimal towards excess has been confirmed; the values of multipliers of budget expenditures indicate the presence of unjustified growth trends (an increase in expenditure growth leads to a decrease in GDP growth).

Separate provisions regarding budget policy in the context of ensuring macroeconomic stability have been formed: the policy should be the basis for optimal redistribution of GDP through the budget in order to ensure the state's performance of such basic functions as management, social, defense, economic, environmental protection, etc.; budget expenditures should be concentrated in priority areas (corresponding to the principles of social justice, ensuring sovereignty, stimulating the real sector of the economy) in volumes that do not violate the norms for balancing the budget (moderate tax burden, safe level of deficit with sources of financing that do not add to the debt burden) ; the orientation of the policy to the primary provision of economic growth and social development of society requires compliance with the indicative indicators of annual GDP growth by 10%, equality of the minimum wage and the living wage.

In the sphere of supporting the branches of the country's economy for the purposes of economic development, budget policy instruments are more important than monetary policy instruments (according to the results of a comparison of the multiplier of budgetary expenditures and the monetary multiplier). It can be expected that under the condition of an expedient, substantiated (and not politically motivated) approach to the choice of directions for the use of budget resources, the effectiveness of budget expenditures will be an order of magnitude higher than the effectiveness of monetary instruments. This significantly increases the relevance of budget policy optimization in Ukraine for the purposes of socio-economic development.

An overview of the theoretical bases and scientific positions on monetary policy allows us to characterize the domestic model as one that includes separate elements of various models, be it in view of the practice of introducing the inflation targeting regime and maintaining the transmission of the discount rate as the main tool (tools of the "two-pillar model»), in terms of refinancing mechanisms, repo operations (tools of the credit-fund model). Based on the results of a brief description of the application of certain instruments, levers of influence, measures of monetary policy during 2010-2020 in Ukraine, we have to witness the signs of a conditionally successful practical implementation of the emission policy, since during its implementation a low fiscal deficit was ensured (with the exception of 2020), a slowdown in inflation, a strengthening of the hryvnia, and overall macro-financial stability were observed. With regard to the budget deficit, the emphasis should be shifted to external sources of financing, given the cooperation with the IMF, MFIs, the positive experience of issuing Eurobonds (this will allow for the formation of a surplus of foreign currency, followed by its emission redemption). Such a secured emission mechanism will simultaneously continue the accumulation of gold and foreign exchange reserves, ensure the financing of state budget expenditures and maintain macro-financial stability.

Based on the results of the research, the possibility of ensuring the financial stability of the budgetary system of Ukraine was determined, taking into account the negative impact of the combination of exogenous and endogenous factors. Taking into account the IMF-recommended methodological approaches for assessing the level of financial stability of the budget system, certain parameters of the security component of the country's budget system have been characterized. Taking into account the government's forecasts regarding the deficit and the national debt, the main factors of the imbalance of the budget system are identified, some financial risks are identified, which complicate the task of ensuring the stability of the budget system in the conditions of martial

law. Possible options for debt management with the aim of achieving stability of the budget system in the post-war period are identified.

The process of economic growth in Ukraine should be based on a harmonious combination of monetary and budgetary instruments. The main criteria that confirm the effectiveness of coordination of monetary and budget policy based on the principle of complementarity include the following: low level of inflationary expectations of economic entities; reduction in demand for foreign currency on the cash foreign exchange market; low and stable level of core inflation; changing the structure of the money issue in favor of the credit channel; reducing the volume of currency interventions by the NBU; compliance with safety indicators of the level of the budget deficit, debt burden, change in the structure of public debt in favor of internal financing, downward trend in the share of public administration sector expenditures. Attention was focused on the need to cooperate with global and European financial institutions in determining the appropriate package of debt restructuring measures for Ukraine. It is the reduction of the debt burden that can become a driver in ensuring the financial stability of the budget system and macroeconomic stabilization.

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CONCEPTUAL PRINCIPLES OF REFORMING THE TAX SYSTEM OF UKRAINE IN THE CONTEXT OF EUROPEAN INTEGRATION

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Current state and peculiarities of functioning of the tax system of Ukraine in the context of external threats

In recent years, unprecedented risks and threats to the functioning of national economies have emerged. In particular, the specific nature and consequences of the COVID-19 pandemic have necessitated the implementation of measures aimed at supporting aggregate demand, business activity, and stabilizing the financial situation of citizens and business entities [1]. The biggest threat in 2022 for both economic and national security in general was the direct military aggression of the Russian Federation. Support, stabilization, restoration and development of the national economy of Ukraine are possible only if the tax policy of the state is effectively implemented. At the same time, the basis for reforming the tax system is the analysis of its current state and evaluation of the implemented measures.

Before the COVID-19 pandemic, Ukraine was characterized by a stable macroeconomic situation. It is worth noting that in recent years, a low budget deficit of about 2% of GDP was recorded, achieved as a result of eliminating a significant quasi-fiscal deficit of Naftogaz. There was also a reduction in the public debt of Ukraine: in 2016, its value in relation to GDP was 80%, while at the end of 2019 this figure decreased to 50% [2]. In addition, external financing was stabilized, inflation was reduced and stable conditions for the functioning of the business environment were ensured.

The main macroeconomic indicator is the gross domestic product. Its dynamics characterizes the efficiency of the national economy and is presented in Figure 1.

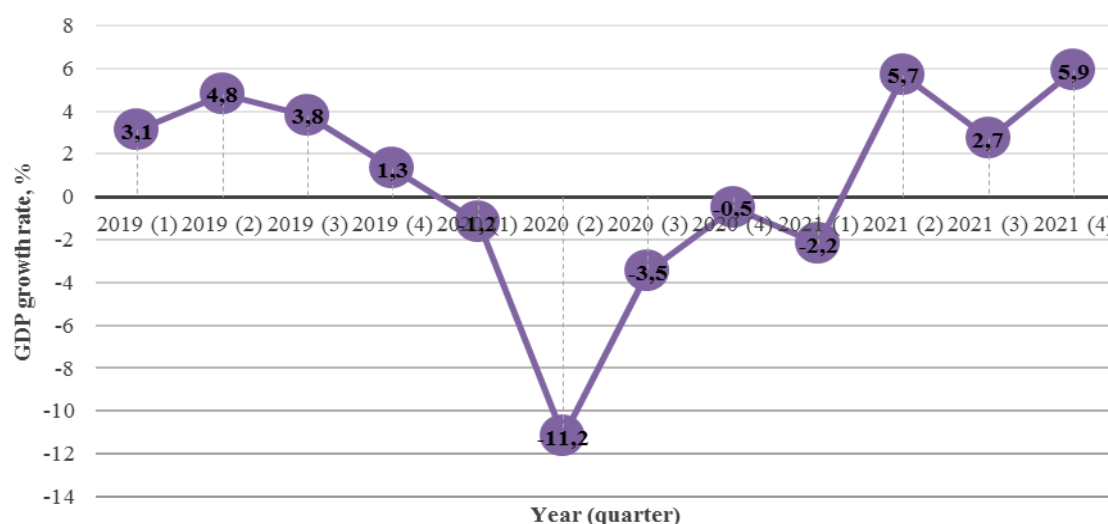


Fig. 1. Change of real GDP of Ukraine during 2019–2021 (in % to the corresponding quarter of the previous year)*

**compiled by the author for [3]*

It is worth noting that the decline in annual GDP growth was observed even before the outbreak of the COVID-19 pandemic. In particular, in the 4th quarter of 2019, the growth was only about 1.3%, and in the 1st quarter of 2020, against the backdrop of the spread of coronavirus disease and a decline in economic activity, it was negative -1.2%. In the 2nd quarter of 2020, due to the introduction of quarantine restrictions, the GDP decline was -11.4%. The prolongation and strengthening of quarantine measures caused a significant deterioration in global commodity markets, narrowing of foreign markets due to high competition. The sharp decline in economic activity as a result of quarantine measures has led to a slowdown in economic development with a projected drop in GDP, a reduction in consumer activity and production in general [4]. Small and medium-sized businesses were the most vulnerable to the transformation of consumer behavior in these conditions, when the main principles of motivation became caution against the background of uncertainty. Due to quarantine restrictions, there was a mass closure of restaurants, cinemas, entertainment centers, hotels and other economic entities in the service sector, which led to job losses, bankruptcy of enterprises with a low level of financial stability. Under these conditions, the use of tax levers to stabilize the macroeconomic situation allowed to reduce the GDP decline to -3.5% in the 3rd quarter of 2020, and to -0.5% in the 4th quarter. At the end of 2021, real GDP growth of 5.9% was achieved. In this regard, it is advisable to analyze the measures taken.

In order to reduce the tax burden on domestic business, maintain the proper level of functioning of the tax system of Ukraine and ensure the implementation of the state budget, a number of draft laws were adopted, in particular:

1. Law of Ukraine of 17.03.2020 No. 530-IX "On Amendments to Certain Legislative Acts of Ukraine Aimed at Preventing the Occurrence and Spread of Coronavirus Disease (COVID-19)"[5].

2. Law of Ukraine dated 17.03.2020 No. 533-IX "On Amendments to the Tax Code of Ukraine and Other Laws of Ukraine on Support of Taxpayers for the Period of Measures Aimed at Preventing the Occurrence and Spread of Coronavirus Disease (COVID-19)". In particular, for violations of tax legislation committed during the period from 01.03.2020 to 31.05.2020, penalties are not applied, except for sanctions for:

- violation of requirements to long-term life insurance contracts or insurance contracts within the framework of private pension provision, in particular supplementary pension insurance;
- alienation of property that is in tax lien without the consent of the supervisory authority;
- violation of the rules of accounting, production and circulation of fuel or ethyl alcohol in excise warehouses, which are applied on a general basis;
- violation of accrual, declaration and payment of value added tax, excise tax, rent.

During the period from March 1 to May 31, 2020, taxpayers are not charged a penalty, and the penalty accrued but not paid for this period is subject to write-off.

Delayed:

1) increase in the amount of sanctions for violation of the Law on the use of payment transaction registers from October 1, 2020 to January 1, 2021;

2) the entry into force of the Law of Ukraine "On Amendments to the Law of Ukraine "On the Use of Payment Transaction Registers in the Sphere of Trade, Catering and Services" and other laws of Ukraine on the de-shadowing of settlements in the sphere of trade and services by August 1, 2020 (before the proposed amendments, the entry into force was planned from April 19, 2020), and some of its provisions – by January 1, 2021 (instead of October 1, 2020) [6].

3. Law of Ukraine dated 02.04.2020 No. 540-IX "On Amendments to Certain Legislative Acts Aimed at Providing Additional Social and Economic Guarantees in Connection with the Spread of Coronavirus Disease (COVID-2019)", which was aimed at amending 9 Codes of Ukraine and more than 30 laws of Ukraine [7].

4. Law of Ukraine dated 13.04.2020 No. 553-IX "On Amendments to the Law of Ukraine "On the State Budget of Ukraine for 2020". These changes provide for a significant increase in the deficit – from 2.1% to 7.5% of GDP. The need for such changes is primarily due to the revision of the macroeconomic forecast and the need to take measures to counter the spread of the COVID-19 coronavirus, support entrepreneurship and vulnerable groups of the population. The budget deficit is planned to be financed by debt sources, the key role in attracting which will be played by borrowings from the IMF and other official financing [8].

5. Law of Ukraine dated 13.05.2020 No. 591-IX "On Amendments to the Tax Code of Ukraine and Other Laws of Ukraine on Additional Support of Taxpayers for the Period of Measures Aimed at Preventing the Occurrence and Spread of Coronavirus Disease (COVID-19)" [9].

6. Law of Ukraine dated 08.08.2020 No. 786-IX "On the collection and accounting of a single contribution for obligatory state social insurance" as amended:

- individual entrepreneurs, persons engaged in independent professional activities and members of farms are temporarily exempted from the calculation and payment of the unified social tax;

- payers of the single contribution are not charged a penalty, and the accrued penalty for these periods is subject to write-off;

- a moratorium on documentary checks of the correctness of the accrual, calculation and payment of the single contribution has been established [10].

7. Amendments approved by the Cabinet of Ministers of Ukraine dated 14.09.2020 to the Tax Code of Ukraine and some other laws of Ukraine in terms of ensuring the balance of budget revenues. The draft law was developed to increase revenues to the State Budget in 2021.

8. Law of Ukraine dated 17.09.2020 No. 905-IX "On Amendments to the Tax Code of Ukraine regarding the clarification of certain conditions for granting benefits for the payment of tourist tax and real estate tax". The Law defines the right of internally displaced persons not to pay tourist tax for temporary residence in the places indicated in the certificate of registration of internally displaced persons [11].

The mentioned documents introduced, in particular, the following changes to the Tax Code of Ukraine dated 02.12.2010 No. 2755-VI (Tab. 1).

Summarizing the above changes to the tax legislation aimed at supporting the business environment in the context of the pandemic COVID-19, it is right to note the weakening of the fiscal function of taxes through the introduction of benefits and exemption from taxation of transactions for the supply of a number of goods necessary for the localization and elimination of coronavirus disease. The implementation of the control function of taxes was complicated due to the introduction of quarantine measures, so the introduction of a moratorium on tax audits was not a significant relief for business.

Table 1

Amendments to the Tax Code of Ukraine due to the pandemic COVID-19 [12]

Tax	Changes
Single tax	The maximum amount of income for single tax payers of all groups has been increased: Group 1 – 1000000 UAH, Group 2 – UAH 50,000,000 group 3 – UAH 7000000. In 2020, local governments have the right to make decisions to amend the adopted decision on the establishment of local taxes and/or fees to reduce the single tax rates.
Value added tax (VAT)	Operations on the import and supply of goods (including medicines, medical devices and/or medical equipment) necessary for the localization and elimination of the coronavirus pandemic COVID-19 in the customs territory of Ukraine are exempt from VAT.
Corporate income tax	The financial result before taxation will not be increased in accordance with subparagraph 140.5.9 of paragraph 140.5 of Article 140 of the Tax Code of Ukraine during the transfer of funds and goods (medicines, disinfectants, medical devices, medical equipment, personal hygiene products, food, etc.) to public associations, charitable organizations, the Ministry of Health of Ukraine, local state administrations, state or municipal health care institutions.
Property tax	Business entities are exempt from paying land tax and tax on immovable property other than a land plot for March 2020.
Excise Tax	The terms of payment of bills of exchange have been extended until 15.07.2020, the maturity of which falls on the period from 01.03.2020 to 31.05.2020. The procedure for the supply of ethyl alcohol for the production of disinfectants has been simplified. The excise tax rate for ethyl alcohol is temporarily set at UAH 0.00 per liter.
Single social contribution	Individual entrepreneurs and persons engaged in independent professional activities are exempt from accrual and payment for the periods March - April 2020, and such periods will be included in the insurance period.

Tax preferences introduced to support the population and business have affected the size of the state budget deficit. Taking into account the official data of the Ministry of Finance of Ukraine and the forecast indicators defined in the Budget Declaration for 2022–2024, a graphical interpretation of the dynamics of the state budget deficit of Ukraine for the period 2014–2024 is presented (Fig. 2).

In 2020, in order to provide financial resources for measures aimed at combating COVID-19, the state budget deficit was increased to 7.5% of GDP. However, this figure was kept at a much lower level – 5.2% of GDP. This means that the need for debt obligations has been reduced by UAH 81 billion. The Law of Ukraine "On the State Budget of Ukraine for 2021" envisages a deficit of 5.5% of GDP, which is fully consistent with similar indicators of other developing countries.

In order to determine the impact of the COVID-19 pandemic on the tax system and the effectiveness of the implemented regulatory measures, it is necessary to analyze tax revenues for a certain period.

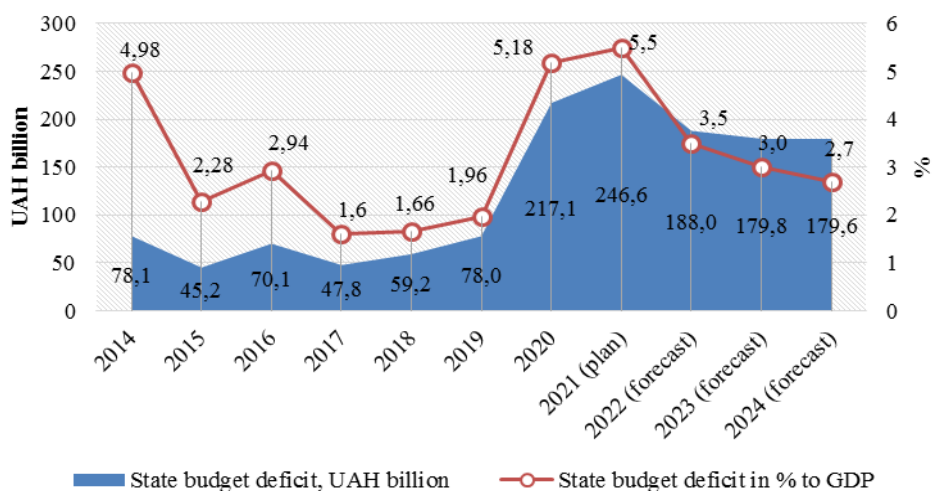


Fig. 2. Dynamics of the state budget deficit of Ukraine in 2014–2024*

*compiled by the author for [13, 14]

According to official statistics, tax revenues account for about 80% of all sources of the Ukrainian budget. There is a need to research the dynamics and structure of their revenues to the State Budget of Ukraine. Table 2 shows the composition and dynamics of tax revenues to the State Budget of Ukraine in 2018–2021.

Table 2

**Structure and dynamics of tax revenues to the State Budget of Ukraine in 2018–2021,
UAH million**

Tax name	Years				Growth rate	
	2018	2019	2020	2021	2021/ 2018	2021/ 2020
1	2	3	4	5	6	7
Total tax revenues	753815,7	799776,3	851114,9	1107090,4	146,86	130,08
Direct taxes:	233883,6	263786,9	278452,7	366056,8	156,51	131,46
personal income tax	91741,8	109954,0	117281,3	137555,2	149,94	117,29
corporate income tax	96882,3	107086,3	108695,0	147751,7	152,51	135,93
rent payment	45265,7	46746,9	52475,7	80749,4	178,39	153,88
fees for fuel and energy resources	-6,2	-0,3	0,7	0,5	-8,06	71,43
Indirect taxes:	520437,2	532134,1	569356,7	737117,6	141,63	129,46
domestic taxes on goods and services	493360,6	502048,1	538896,2	698940,4	141,67	129,70
taxes on international trade and foreign operations	27076,6	30086,0	30460,5	38177,2	141,00	125,33
Other taxes and fees	-505,1	3855,0	3306,2	3916,5	775,39	118,46

*compiled by the author for [15]

According to the results of the presented data, it is legitimate to note the increase in the total amount of tax revenues to the State Budget of Ukraine, even in the context of the outlined challenges caused by the pandemic COVID-19. In 2021, total tax revenues amounted to UAH 1107 billion, which is 30.08% more than in the previous year. Direct tax revenues to the state budget

increased from UAH 233883.6 million in 2018 to UAH 366056.8 million in 2021, and indirect taxes – from UAH 520437.2 million to UAH 737117.6 million, respectively.

Indirect taxes prevail in the revenues of the State Budget of Ukraine during the period under study, of which the largest share belongs to domestic taxes on goods and services, in particular VAT and excise – about 63% (Fig. 3). Their amount in 2021 amounted to UAH 699 billion, which is 41.67% more than in 2018. Rent revenues show rapid dynamics: in 2018, their amount was UAH 45 billion, and in 2021 it increased 1.8 times and amounted to UAH 81 billion. In 2018 and 2019, there was a shortfall of funds from fees for fuel and energy resources in the amount of UAH 6.2 and 0.3 million, respectively. At the same time, in 2020–2021, there is a positive dynamics of revenues. In 2018, there was also a shortfall of funds from other taxes and fees in the amount of UAH 505.1 million. However, since 2019, revenues have shown a rapid upward trend.

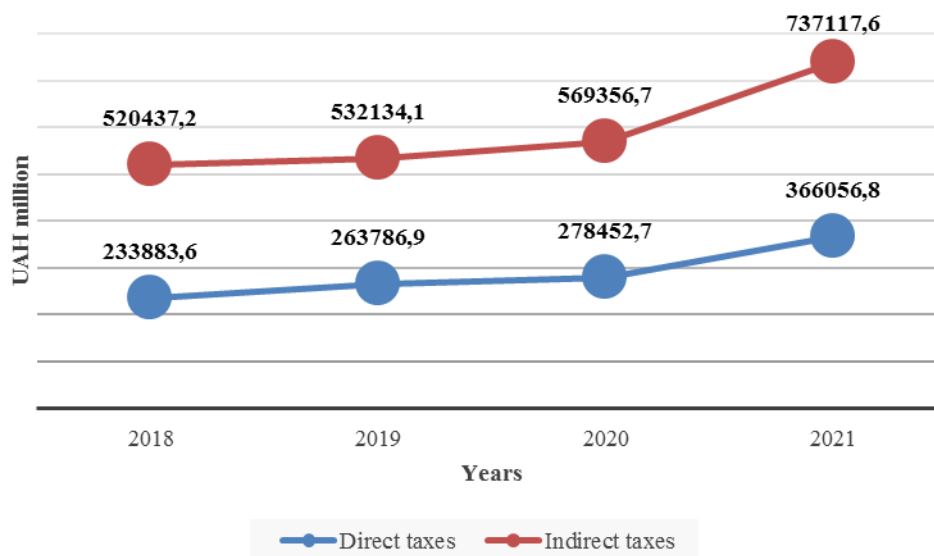


Fig. 3. Dynamics of direct and indirect taxes to the State Budget of Ukraine during 2018–2021*

**compiled by the author for [15]*

The structure of tax revenues to the State Budget of Ukraine for 2021 is presented in Figure 4.

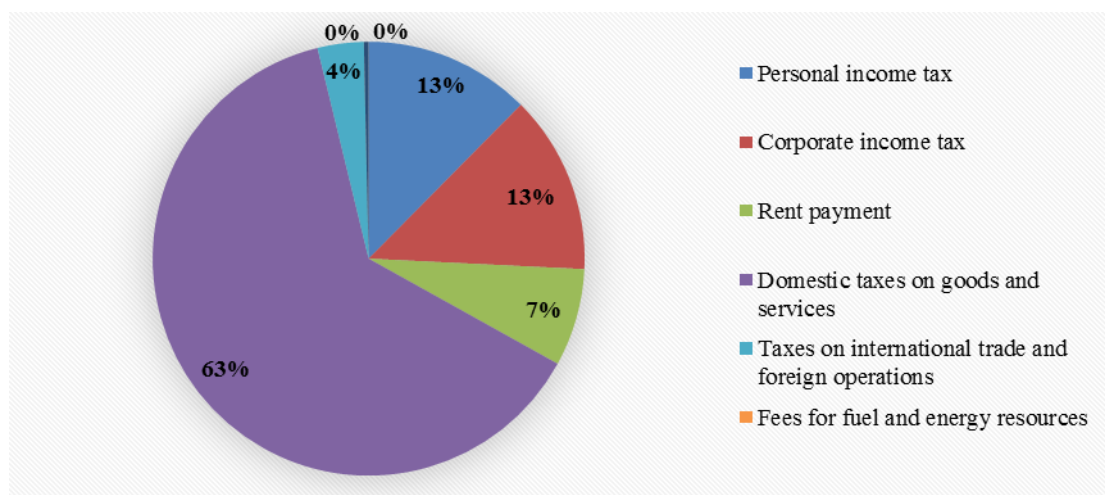


Fig. 4. The structure of tax revenues to the State Budget of Ukraine for 2021, %

**compiled by the author for [15]*

These data confirm the thesis that tax revenues to the state budget are formed mainly from three types of taxes: domestic taxes on goods and services, personal income tax and corporate profit tax. Thus, domestic taxes on goods and services account for 63.13%, personal income tax – 12.42%, and corporate income tax – 13.35%. This group of taxes accounts for about 89% of all tax revenues, so they largely determine the size of tax revenues.

The analysis of tax revenues in 2018–2021 allows us to conclude that the implemented tax instruments to respond to the threats caused by the COVID-19 pandemic were effective and did not have a negative impact on the State Budget of Ukraine. At the same time, local budgets turned out to be more sensitive to the unprecedented challenges of 2019, which was reflected in the indicators of 2020.

The analysis of local budget revenues of Ukraine in 2019–2021 is presented in Table 3.

Table 3

Local budget revenues of Ukraine in 2019–2021, UAH billion

	Year			Absolute deviation (+/-)	
	2019	2020	2021	2020/2019	2021/2020
1	2	3	4	5	6
Total revenues including intergovernmental transfers from the state budget	560,5	471,5	580,7	-89,0	109,2
Revenues excluding intergovernmental transfers from the state budget:					
personal income tax	165,5	177,8	212,2	12,3	34,4
single tax	25,0	27,6	34,8	2,6	7,2
domestic taxes on goods and services	13,7	15,5	17,8	1,8	2,3
land tax on legal entities	11,5	10,8	11,8	-0,7	1,0
rent from legal entities	17,2	16,4	18,9	-0,8	2,5
other taxes and fees	67,3	63,2	82,5	-4,1	19,3
Official transfers	260,3	160,2	202,7	-100,1	42,5

Analyzing the dynamics of revenues to local budgets, it is noticeable that the amount of funds in 2020 decreased by UAH 89 billion compared to the previous year, thus their amount amounted to UAH 471.5 billion. This was due to a decrease in official transfers from the state budget by UAH 100.1 billion due to the allocation of funds to contain the spread of the coronavirus pandemic. In 2020, revenues excluding inter-budget transfers increased by UAH 11.1 billion due to an increase in revenues from personal income tax by UAH 12.3 billion, single tax on individuals by UAH 2.6 billion and domestic taxes on goods and services by UAH 1.8 billion. Revenues from the land tax and rent from legal entities decreased by UAH 0.7 billion and UAH 0.8 billion, respectively, due to the exemption of business entities from paying these types of taxes as part of the tax measures introduced to support businesses during the COVID-19 pandemic. Figure 5 shows the growth rate of actual land tax revenues in 2020 compared to 2019 by regions of Ukraine.

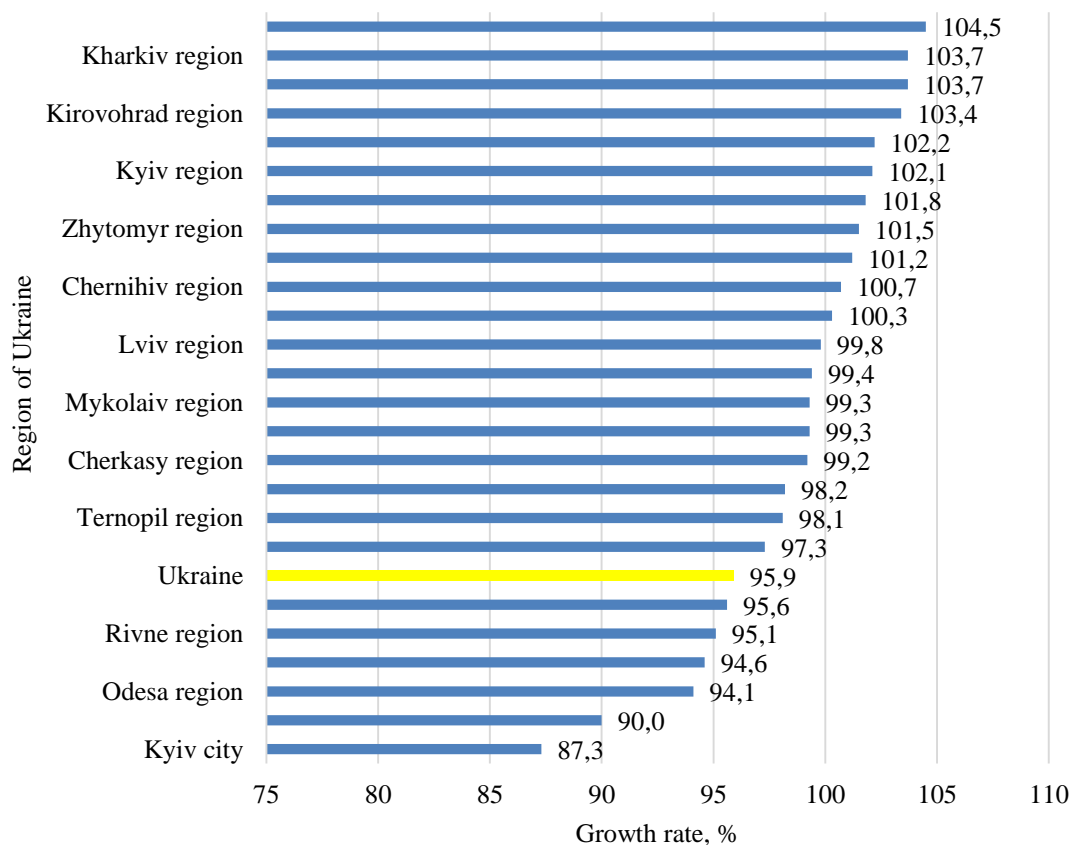


Fig. 5. Growth rates of actual land payment revenues in 2020 compared to 2019 by regions of Ukraine*

**compiled by the author for [3]*

Thus, it can be concluded that the exemption of business entities from paying land tax had a significant impact on local budget revenues in most regions of Ukraine in 2020 compared to 2019. Luhansk region had the highest growth rate – 104.5%, Kharkiv and Khmelnytskyi regions – 103.7%. In 13 regions, the growth rate of land tax revenues did not exceed 100%. In particular, Lviv region – 99.8%, Poltava region – 95.6% and Dnipropetrovsk region – 90%. The lowest value of this indicator is in the city of Kyiv – 87.3%. In general, the average growth rate of land tax revenues in the regions of Ukraine was 95.9%.

In 2021, there is a positive trend towards an increase in revenues of local budgets of Ukraine by UAH 109.2 billion, thus their amount amounted to UAH 580.7 billion. Official transfers increased from UAH 160.2 billion in 2020 to UAH 202.7 billion in 2021. Revenues excluding inter-budget transfers from the state budget also increased by UAH 66.7 billion due to a significant increase in revenues from personal income tax by UAH 34.4 billion, single tax by UAH 7.2 billion and other taxes by UAH 19.3 billion.

Thus, the implemented instruments of tax support for business during the pandemic proved to be effective and allowed to ensure a sufficient level of revenues to the State Budget of Ukraine. At the same time, the digitalization of the tax system has been intensified. They resulted in the creation of an electronic taxpayer's office, the formation of a single tax account, and the functioning of electronic tax reporting services. In the future, the formation and implementation of a digital tax personification program was planned.

However, the beginning of 2022 was marked by a systemic shock for the tax system and the national economy as a whole – the military invasion of the Russian Federation. The unprecedented threat to national security required, among other things, prompt changes in the tax system to support the functioning of the Ukrainian economy.

The war started by the Russian Federation resulted in the loss of a significant part of the state budget of Ukraine in the form of taxes, excise and customs duties. According to the estimates of the Ministry of Economy of Ukraine, direct losses to Ukraine's infrastructure due to the war amount to at least USD 120 billion or almost UAH 3.6 trillion, excluding losses of economic growth. Also, according to the calculations of the National Bank of Ukraine, each week of hostilities "costs" the national economy more than UAH 50 billion [16].

The World Bank experts predict that Ukraine's GDP will decrease by 45% in 2022, the International Monetary Fund predicts a 35% drop in the Ukrainian economy [17, 18]. The reduction of Ukraine's GDP is expected in all components, in particular, private consumption will decrease due to the forced departure of many citizens from the country, unemployment will increase, incomes will decrease and savings on secondary expenses will increase. Due to significant uncertainty and high risks, investment activity will also decline significantly.

According to the International Labour Organization, since the beginning of the aggression of the Russian Federation, 30 to 50% of enterprises have completely ceased their activities, which led to the loss of 4.8 million jobs, and further hostilities will increase their number to 7 million [19]. However, if the hostilities stop immediately, the economic recovery will be accompanied by the return of 3.4 million jobs.

The consequences of a full-scale attack by the Russian Federation will increase inflationary pressures, which are partially contained by the measures of the government and the National Bank of Ukraine. The inflation index in February 2022 was 101.6%, in March it increased to 104.5%, and in October it decreased to 102.5% [20]. The rise in consumer prices is primarily due to the disruption of supply chains and production processes, uneven demand, increased business costs, as well as the physical destruction of assets of many enterprises due to the full-scale attack of the Russian Federation on Ukraine. First of all, the prices for food, pharmaceuticals and fuel have rapidly increased. According to the National Bank of Ukraine, inflationary pressure will continue to persist, primarily due to the consequences of a full-scale war. By the end of 2022, inflation may exceed 20%, but will remain under control. At the same time, price growth will be restrained by measures taken by the National Bank and the Government of Ukraine, among others:

- temporary fixing of the hryvnia exchange rate, which will restrain the probable deterioration of expectations and the rise in prices of imported goods;
- reduction of taxes, including indirect taxation of imports;
- fixing prices for housing and communal services;
- administrative regulation of prices for a number of food products and fuel.

After the first weeks of the full-scale invasion of Ukraine by the Russian Federation, economic activity revived in relatively calm regions. Businesses gradually began to resume their activities, overcoming the challenges of wartime.

Ensuring stable tax revenues to the state budget is a necessary condition for the functioning of the country under martial law. At the same time, in order to support domestic business entities, the Verkhovna Rada of Ukraine has adopted a number of Laws of Ukraine aimed at reducing the tax burden to ensure the adaptation of the national economy to the realities of martial law and rapid recovery after the war.

Today, special taxation conditions are provided by the following Laws of Ukraine:

–No. 2118-IX "On Amendments to the Tax Code of Ukraine and other Legislative Acts of Ukraine regarding the peculiarities of taxation and reporting during the period of martial law";

–No. 2120-IX "On Amendments to the Tax Code of Ukraine and Other Legislative Acts of Ukraine Regarding the Validity of Norms for the Period of Martial Law".

–No. 7190 "On Amendments to the Tax Code of Ukraine and Other Legislative Acts of Ukraine Regarding the Validity of Norms for the Period of Martial Law".

According to the Law No. 2118-IX, which entered into force on March 7, 2022, it provides for the suspension of the terms determined by tax legislation; moratorium on all types of tax audits; exemption from liability for violation of tax legislation [21].

The Law No. 2120-IX, which entered into force on March 17, supplemented and partially clarified the adopted amendments, in particular: some types of tax audits are allowed; benefits from the single tax, land payment are proposed; the peculiarities of applying tax benefits for benefactors are clarified; the peculiarities of tax credit formation and registration of tax invoices are determined, etc. [22].

Individual entrepreneurs, self-employed persons and members of farms from March 1, 2022 until the termination or cancellation of martial law in Ukraine have the right not to accrue, calculate and pay the single social contribution for themselves. Also, employers – individual entrepreneurs, single tax payers of the 2nd and 3rd groups, as well as legal entities belonging to the 3rd group of single tax payers have the right not to pay the single social contribution for employees who were called up for military service. In this case, these employees will be paid from the state budget.

The outlined tax instruments to support individual entrepreneurs were aimed at relocating businesses due to the negative trend of reducing their number. At the beginning of 2022, there were 1997030 individual entrepreneurs in Ukraine, and in January–May 94754 units ceased their activities. The main reasons were identified:

- unfavorable information background;
- new law on the mandatory use of cash registers (registrar of payment transactions, RPT);
- energy crisis - increase in utility and rent payments;
- military aggression of the Russian Federation (physical destruction, reduced demand, logistics problems, etc.)

It should be noted that the largest number of closures falls on February 2022 – 36632 individual entrepreneurs ceased their activities. During January–May, 91803 individual entrepreneurs were registered. Thus, at the beginning of June, 1993358 individual entrepreneurs remained active (Fig. 6).

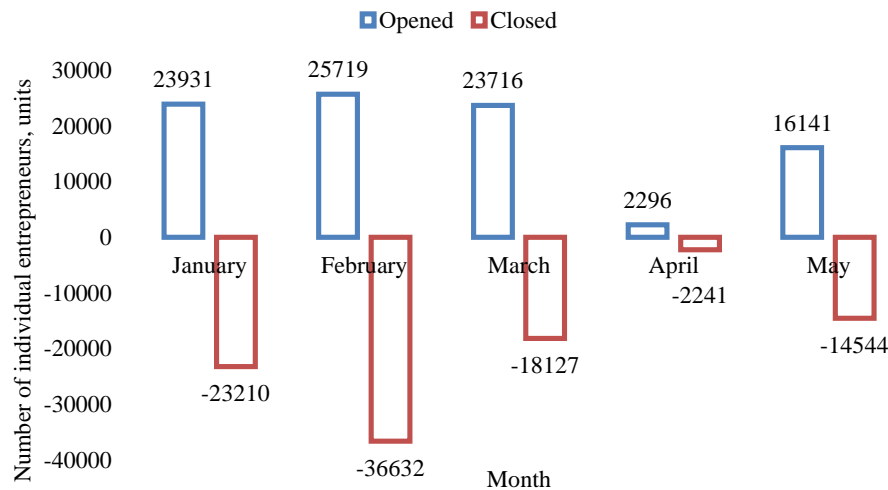


Fig. 6. Dynamics of opening and closing of individual entrepreneurs in January–May 2022*

*compiled by the author for [3]

The analysis of the single tax revenues to the consolidated budget of Ukraine for 2019-2021 and the calculation of forecast indicators for 2022 are presented in Table 4.

Table 4

Single tax revenues to the consolidated budget of Ukraine for 2019–2021 and forecast for 2022

Indicator	2019	2020	2021	2022 (forecast)
Single tax revenues, UAH thousand	35270200	38031000	46282400	32214564
Number of individual entrepreneurs	1561028	1599755	1983269	1386494
Single tax revenues from 1 individual entrepreneur (average value), UAH thousand	22,59	23,77	23,34	23,23

After analysis, we can conclude that during 2019–2021, single tax revenues gradually increased from UAH 35270.2 million to UAH 46282.4 million. The number of individual entrepreneurs also increased in 2020 by 38727 units, and in 2021 – by 24% compared to the previous year [3].

According to forecasts, by the end of 2022 the number of individual entrepreneurs will decrease to 1386494, which is primarily due to the military aggression of the Russian Federation (Fig. 7).

Thus, having made calculations, it is legitimate to state that the single tax revenues in 2022 will decrease to UAH 32214.6 million. However, it should be noted that these calculations are based on the tax rates that were in force before martial law. The Law No. 2120-IX establishes a rate of 2% of income for the 3rd group mandatory, and for the 1st and 2nd groups – voluntary, so it is impossible to make a more accurate forecast, but it can be said with certainty that the amount of single tax revenues to the consolidated budget of Ukraine in 2022 will be significantly lower than in previous years.

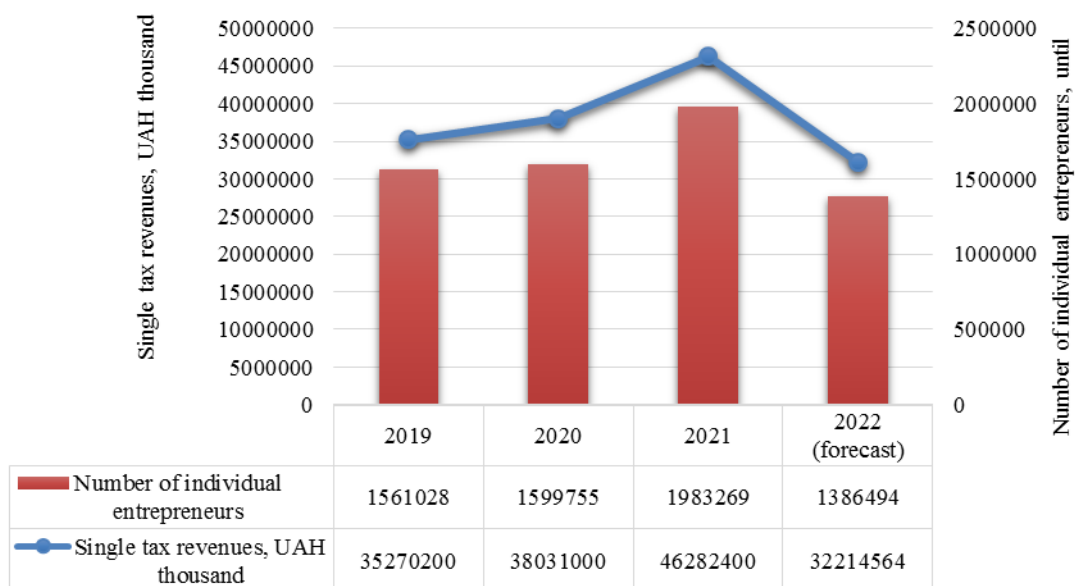


Fig. 7. Dynamics of changes in the number of individual entrepreneurs and single tax revenues from them during 2019-2022*

**compiled by the author for [3]*

In addition to supporting small businesses, the Verkhovna Rada of Ukraine has also introduced a number of tax benefits for charitable assistance to state bodies, enterprises, organizations, etc. that encourage citizens to help the state during martial law:

- 1) humanitarian aid in the form of fuel transferred to the Armed Forces of Ukraine or territorial defense is not subject to VAT;
- 2) targeted charitable assistance provided to combatants and persons residing in the territory of hostilities or who were forced to leave their place of residence due to hostilities and untargeted charitable assistance provided to persons affected by the armed aggression of the Russian Federation are not subject to personal income tax and military duty;
- 3) the tax rebate of an individual includes the amount of funds and the value of property donated to non-profit organizations in the amount not exceeding 16% of the annual taxable income of such person. As a general rule, the tax discount is up to 4% of annual taxable income;
- 4) persons engaged in independent professional activity and individual entrepreneurs on the general taxation system may deduct the entire amount of funds or the value of property transferred as charitable assistance to state bodies, enterprises, organizations, etc. [22].

Thus, the new provisions of the tax legislation are designed not only to reduce the tax burden on business, stabilize important segments of the economy, but also to stimulate charitable assistance to the Armed Forces of Ukraine and other state bodies, enterprises, organizations whose activities are critical during martial law [23]. Generalized tax instruments to support the national economy are presented in Table 5.

At the same time, a reduction in the tax burden inevitably leads to a decrease in tax revenues. Thus, according to the operational data of the State Treasury Service, in October 2022, the general fund of the state budget received UAH 72.8 billion, which is almost 50% less than in September 2022. This situation is due to the fact that for the first time since the beginning of the full-scale invasion of the Russian Federation in Ukraine, the Government did not attract a single hryvnia of grant funds for the month, while in September it managed to accumulate UAH 72.5 billion of non-

repayable financial assistance, and in August UAH 109.7 billion. This may indicate that Ukraine has received the entire amount of grant aid currently allocated.

Table 5

New provisions of the tax legislation of Ukraine introduced in connection with martial law*

Tax	Changes
1	2
Single tax	From April 1, 2022, individual entrepreneurs - single tax payers of groups 1 and 2 have the right not to pay the single tax. Group 3 taxpayers pay the tax at the rate of 2% of income. VAT on transactions with a place of supply in Ukraine and limitation of the number of employees is not applied.
Value added tax (VAT)	Operations on import and supply of special personal protective equipment, other specified defense goods, medicines according to the list of the Cabinet of Ministers of Ukraine are exempt from taxation. Operations on the supply and import into the territory of Ukraine of motor gasoline, heavy distillates and liquefied gas, for which the excise tax rate is set at EUR 0.00 per 1000 liters, as well as oil or oil products under certain codes, are taxed at the rate of 7% VAT.
Corporate income tax	The activities of non-profit organizations on the transfer of property, provision of services, use of income to finance expenditures, if such services are provided, and the funds are transferred to state bodies for the needs of ensuring the defense of Ukraine, and / or funds are transferred to special accounts opened by the National Bank of Ukraine for the collection of funds, are not a violation.
Excise Tax	For gasoline, other petroleum products, heavy distillates, liquefied gas, propane, isobutane, the excise tax rate is set at EUR 0.00 per 1000 liters.
Environmental tax	For the tax year 2022, environmental tax is not paid on objects located in the territories where hostilities are (were) conducted or temporarily occupied by armed formations according to the list determined by the Cabinet of Ministers of Ukraine.
Land tax	From March 2022 to December 31 of the year following the year in which martial law is terminated, no land tax and rent for land plots of state and communal property shall be paid for land and shares located in the territories where hostilities are (were) conducted, in the temporarily occupied territories, the list of which is determined by the Cabinet of Ministers of Ukraine, which are defined as contaminated with explosive objects and/or where there are fortifications. For the tax years 2022 and 2023, the general minimum tax liability for land plots located in the above-mentioned territories shall not be paid.
Personal income tax	The tax rebate of a taxpayer for 2022 includes the amount of funds or the value of property transferred by him in the form of donations or charitable contributions to non-profit organizations in the amount not exceeding 16% of his total annual taxable income. New categories of income that are not included in the total income of taxpayers subject to taxation have been established (in particular, the amount of charitable assistance in favor of combatants, individuals living in settlements where military operations are carried out and/or who were forced to leave their place of residence, in the limit amounts, the amount of charitable assistance provided by certain international charitable organizations).

1	2
Single social contribution	<p>From March 1, 2022, until the termination of martial law, as well as for 1 year after its termination, individual entrepreneurs, persons engaged in independent professional activity, members of farms have the right not to pay a single contribution for themselves.</p> <p>For the period of mobilization, employers - single taxpayers who have chosen the simplified taxation system, individual entrepreneurs belonging to the 2nd and 3rd groups of single taxpayers, as well as legal entities belonging to the 3rd group of single taxpayers, have the right not to pay the single contribution for employees called up for military service in the Armed Forces of Ukraine.</p>

**compiled by the author for [21, 22]*

Among the payments controlled by the tax and customs authorities, the main revenues were received from: value added tax on goods imported into the customs territory of Ukraine - UAH 26.0 billion; value added tax on goods produced in Ukraine – UAH 14.2 billion; income tax and military duty – UAH 12.8 billion; excise tax – UAH 7.8 billion; rent for mineral resources – UAH 3.8 billion; and tax on income from the sale of goods. UAH; personal income tax and military duty – UAH 12.8 billion; excise tax – UAH 7.4 billion; rent for subsoil use – UAH 4.4 billion; corporate income tax – UAH 3.2 billion; import and export duties – UAH 2.6 billion.

Revenues of the single contribution for obligatory state social insurance to the Pension Fund and social insurance funds in October 2022 amounted to UAH 37.9 billion. In general, in January–October 2022, the general fund of the state budget received UAH 575.7 billion [24].

In January–October 2022, the largest share in the payment of taxes, fees and payments to the Consolidated Budget of Ukraine was paid by business entities in the following sectors (Fig. 8).

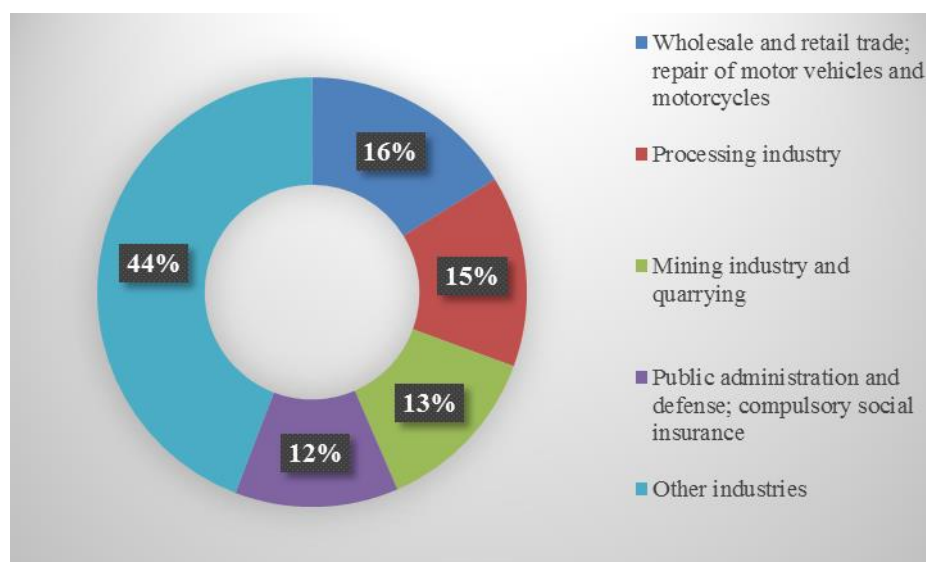


Fig. 8. Structure of revenues of taxes, fees and payments to the Consolidated Budget of Ukraine for January - October 2022 by sectors of the national economy

**compiled by the author for [24, 27]*

The largest increase in payments for 10 months of 2022 compared to 10 months of 2021 occurred in the following sectors: "Public administration and defense; compulsory social insurance" – an increase of 2.2 times, or + UAH 64 billion; "Supply of electricity, gas, steam and air

conditioning" – an increase of 1.4 times, or + UAH 19.4 billion; "Financial and insurance activities" – an increase of 1.3 times, or + UAH 12.8 billion; "Wholesale and retail trade; repair of motor vehicles and motorcycles" – an increase of 1.1 times, or + UAH 11.7 billion.

The decrease in payments for 10 months of 2022 compared to 10 months of 2021 occurred in the following industries: "Agriculture, forestry and fisheries" – by 23.7%, or UAH 12.7 billion; "Processing industry" – a decrease of 20.7%, or UAH 35.6 billion; "Transport, warehousing, postal and courier activities" – by 15.4%, or UAH 10.2 billion [24, 27].

Thus, in the conditions of martial law, the national economy has faced an unprecedented challenge: on the one hand, there is a need to strengthen state support for all sectors of the economy, and on the other hand, the need to fill the state budget has increased. Adaptation of the tax system to the realities of today, the use of tax instruments to support business is a necessary condition for ensuring the functioning of the national economy.

Directions of reforming the tax system in the context of European integration processes

Since the signing of the Association Agreement between Ukraine and the European Union, Ukraine has actively started moving towards European integration. As of the end of 2021, the state of implementation of the Association Agreement was estimated at 63%. On February 28, 2022, an application for accession to the European Union was submitted. In 2022, due to the outbreak of a full-scale war of the Russian Federation against Ukraine, the pace of reforms in the framework of the implementation of the Association Agreement slowed down significantly. At the same time, the issue of the efficiency of the tax system and its approximation to European standards has become particularly relevant.

Today, one of the priority tasks for Ukraine is to support the national economy with its further post-war recovery and reconstruction. In this aspect, the tax system plays an important role as an effective lever for maintaining and restoring economic and social stability, provided that the balance between the state's capabilities in terms of providing it with financial resources through the tax mechanism and achieving priority socio-economic goals in the context of the country's European integration is maintained. In order to confirm this thesis, the impact of the tax system on the national economy of Ukraine was assessed, taking into account the main macroeconomic indicators for 2018–2021 (Tab. 6).

Table 6

Main macroeconomic indicators of Ukraine for 2018–2021*

Indicators	2018	2019	2020	2021
Tax revenues, UAH million	986348,5	1070321,8	1136687,2	1453804,1
Consolidated budget revenues, UAH million	1184278,1	1289779,8	1376661,6	1662242,7
Share of tax revenues in the Consolidated Budget, %.	83,29	82,98	82,57	87,46
GDP, UAH million	3083409	3675728	3818456	4363582

**compiled by the author for [3, 27]*

Thus, the main macroeconomic indicators of Ukraine during 2018–2021 show a positive trend. In particular, tax revenues during the analyzed period increased by UAH 467455.6 million. This was due to the expansion of the tax base and effective control over taxpayers. Tax revenues make up the main share of revenues to the consolidated budget. During 2018-2021, they

consistently accounted for more than 80% and at the end of the period under review amounted to 87.46% of all revenues.

The revenues of the Consolidated Budget of Ukraine also grew steadily and in 2021 amounted to UAH 1662242.7 million, which is 1.4 times more than in 2018. In general, the growth of consolidated budget revenues was due to an increase in tax revenues [3, 24, 25].

Figure 9 shows the dynamics of the main macroeconomic indicators of Ukraine: GDP, tax revenues and consolidated budget revenues of Ukraine during 2019–2021. The growth rates of all three analyzed indicators are similar in terms of changes: a decrease in the growth rate of tax revenues leads to a decrease in the growth rate of the consolidated budget and total GDP, and vice versa. This indicates a significant impact of tax revenues on the main macroeconomic indicators of Ukraine. Accordingly, the economic recovery and development of the country largely depends on the efficiency of the tax system.

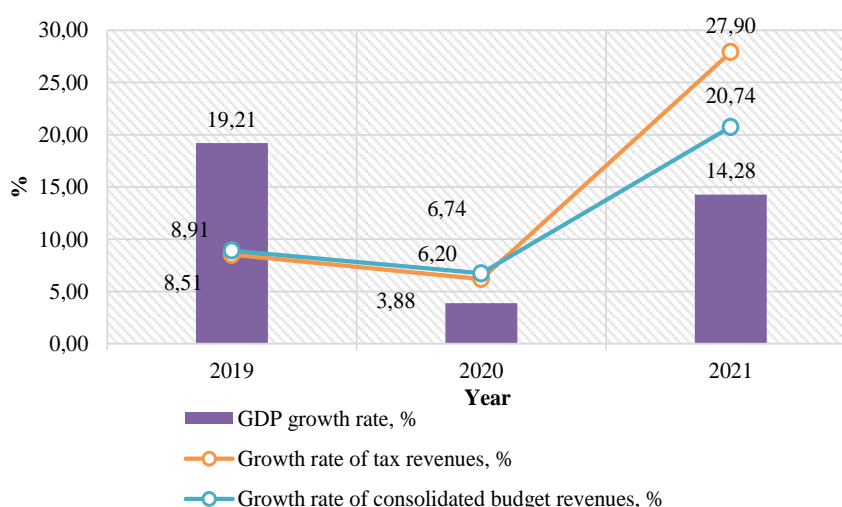


Fig. 9. Dynamics of GDP, tax revenues and consolidated budget revenues of Ukraine during 2019–2021*

**compiled by the author for [3, 24, 25]*

An important fiscal indicator is the tax burden, which characterizes the total impact of taxes on the country's economy as a whole or on individual business entities. In fact, the tax burden is an indicator of the effectiveness of tax policy, which affects the level of state budget revenues, the level of tax revenues in the GDP structure and, accordingly, the share of GDP per capita.

The increase or decrease of the overall tax burden can be carried out not only by adjusting the tax rates, but also by changing the amount of tax benefits for certain business entities. A. Laffer's research confirms that the state must always pursue a moderate policy of tax pressure to ensure stable revenues. This concept is aimed at reducing the burden on taxpayers, and the growth of budget revenues should be carried out by increasing the number of taxpayers and expanding the tax base [28].

At the macro level, the tax burden indicator reflects the effectiveness of tax policy, thus quantifying the aggregate impact of tax payments on the sources of their payment. In economic science, there are several approaches to assessing the level of tax burden, namely:

- 1) as a ratio of the amount of tax revenues to the budget to the amount of total private sector income;
- 2) as the difference between the total amount of tax revenues and expenditures and transfers from the budget for the maintenance of the private sector of the economy;

3) as a share of tax budget revenues in gross domestic product.

The analysis of the tax burden in Ukraine during 2018–2021 is presented in Table 7.

The level of tax burden in Ukraine during 2018–2021 fluctuates. In 2019, there was a noticeable decrease from 23.59% to 20.83%, which was due to a significant increase in GDP by UAH 592319 million. Over the next two years, a gradual increase is noticeable: in 2020 – up to 21.41%, and in 2021 – up to 24.41%. This is due to a significant increase in tax revenues by UAH 247649 million compared to last year. This trend may lead to an increase in the shadow economy and a decrease in the level of economic development of the country.

Table 7

Indicators of the tax burden in Ukraine during 2018–2021*

Indicator	Years				Growth rate	
	2018	2019	2020	2021	2021/2018	2021/2020
Total tax revenues, UAH million	727250	765835	817348	1064997	337746	247649
GDP, UAH million	3083409	3675728	3818456	4363582	1280173	545126
The level of tax burden, %	23,59	20,83	21,41	24,41	0,82	3,00
Own income of the pension fund, UAH million	202084	241752	281751	327007	124923	45256
Tax burden on labour, %	6,6	6,6	7,4	7,5	0,94	0,12
Total tax burden coefficient, %	30,14	27,41	28,78	31,90	1,76	3,12

**compiled by the author*

In addition to this indicator is the tax burden on labor, its level in 2018 and 2019 was 6.6%, next year there is a sharp increase to 7.4% and in 2021 – to 7.5%. In order to reduce the tax burden on labor in Ukraine, a pension reform was carried out, according to which the retirement age and the required insurance period for receiving a pension were increased.

The overall tax burden ratio was constantly changing during the study period and reached a maximum value of 31.9% in 2021, which is 3.12% more than in the previous year (Fig. 10).

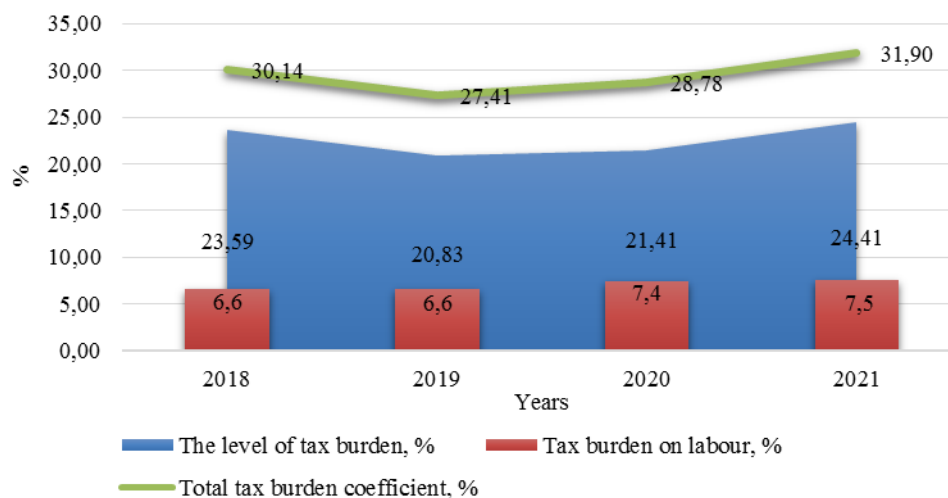


Fig. 10. Dynamics of the tax burden on the economy of Ukraine during 2018–2021*

**compiled by the author*

It should be noted that taxes are the main source of revenues to the State Budget of Ukraine, so there are no significant reserves for the overall reduction of the tax burden. But it is necessary to look for alternative ways and reserves to redistribute the tax burden. This can be achieved, in particular, through the redistribution of taxation of objects and subjects.

In order to assess the tax burden in Ukraine, it is advisable to compare it with other countries of the world. This is especially relevant in the context of European integration processes. It is important for Ukraine to monitor the transformation of the tax system in other European countries, responding to new challenges and threats. The European experience and history of tax reforms, both positive and negative, can be very useful in terms of finding effective tax instruments to improve the macroeconomic situation, balance the state budget and ensure social stability in the country [29].

According to the World Bank Enterprise surveys in 121 countries, the majority of enterprises consider the reduction of tax rates and tax administration time as the first step. Studies have shown that high growth rates of income tax have a negative impact on investment and business environment. In addition, countries with high tax rates have large informal sectors. Also, corporate tax rates can be negatively correlated with economic growth. Another analyzed study showed that an increase of 1 percentage point in the total tax rate leads to a simultaneous increase in the tax evasion rate by 3% [30]. However, taxes significantly increase government revenues, which governments can use to finance social programs and public investment, promote economic growth and develop a proper budget balance. Currently, there is no single proportional level of tax burden in the European Union. The map of tax burden in the world is presented in Figure 11.

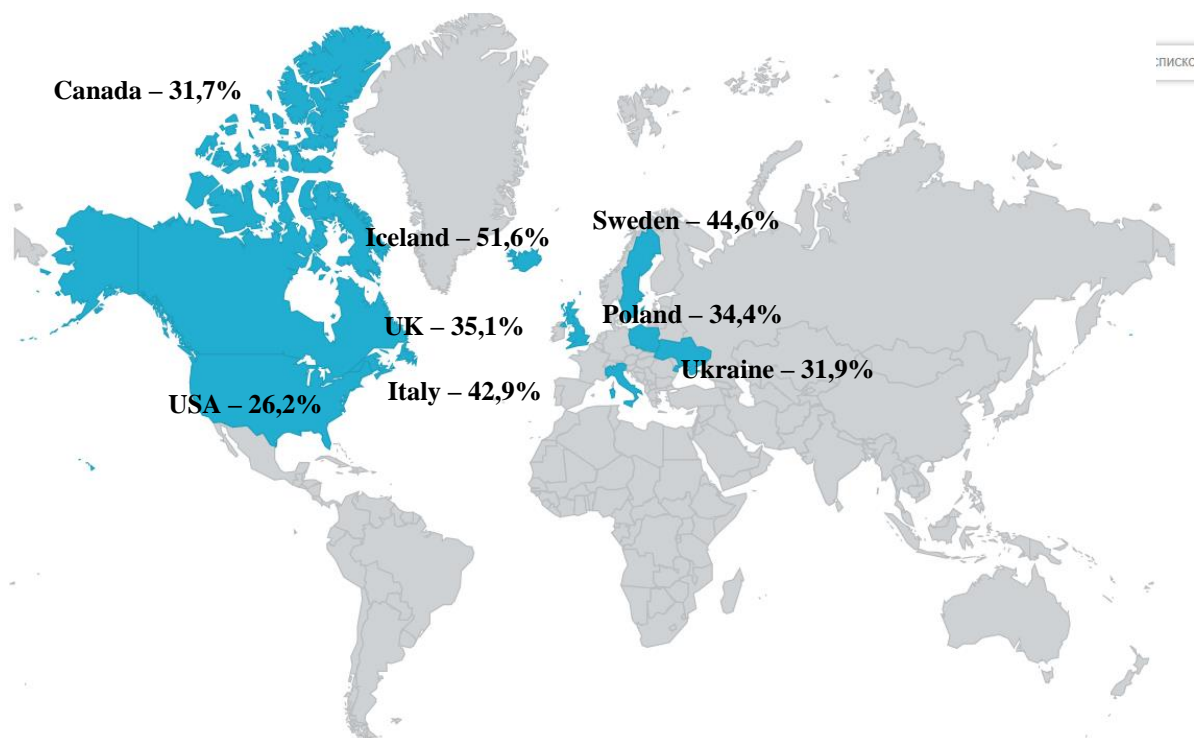


Fig. 11. The level of tax burden in the world in 2021*

**compiled by the author for [31]*

Compared to developed countries, the tax burden of the Ukrainian economy is low – 31.9% of GDP. The average value in European countries is about 40% of GDP and is distributed extremely

unevenly: a significant tax burden in Iceland – 51.6% and Sweden – 44.6%. And the lowest tax pressure is in the USA – 26.2% and Ireland – 23%. The level of tax burden in Norway and Germany is about 38% of GDP, in the UK and Poland about 35% [31].

When comparing the tax burden in different countries of the world, it is important to take into account the part of taxes that is returned to the population in the redistribution of budget revenues. Thus, for example, for Scandinavian countries this share of redistributed revenues is approximately 85%, while in Ukraine it is less than 30%. Also, American economists note that the maximum rate of withdrawal to the budget is 30% of the amount of income, and 40–50% of withdrawals of income reduces the company's own funds, promotes disinterest in investment and increases the risk of reducing tax revenues due to the transition of enterprises to the shadow sector [32].

The effectiveness of the state tax policy, the effectiveness of taxation, the effectiveness of the tax system – all this is the reason for the use of various indicators for its quantitative assessment, their ordering, placement.

In the formation of the system of indicators of fiscal efficiency of taxes at the macro level, it is necessary to observe the ratio of the final result, for example, in the form of national income, gross domestic product, the activities of the State Tax Service of Ukraine, and the effect to the attracted resources. The increase of the fiscal efficiency of direct taxes is influenced by such important factors as the level of income of legal entities and individuals, their ability to increase their own capital, the investment climate in the economy as a whole and in various sectors, the level of income and expenditures of the population, the inflation rate in the country, stability and predictability of changes in tax legislation, etc.

The mechanism for assessing the fiscal efficiency of taxes includes the following areas of research:

- analysis of the impact of the tax burden on the country's economy;
- analysis of the efficiency of tax revenue collection, which consists of the analysis of the efficiency of individual types of taxes and the analysis of the efficiency of the State Tax Service of Ukraine;
- analysis of the uniformity of revenues of certain types of taxes to the budget.

The practical purpose of assessing the fiscal efficiency of individual types of taxes is to determine:

- 1) the ratio of tax revenues to budget revenues and GDP of the country;
- 2) what are the costs of financial resources for the provision of tax collection services;
- 3) whether taxpayers (consumers of services) receive satisfaction from their payment (consumption of the product), etc.

In addition, evaluation is a process that requires continuous improvement due to the specificity of its purpose: the ability to obtain objective information, which traces the level of development of the object of evaluation, to identify areas for improving the current state and to make adjustments to the activities and directly to the evaluation system in terms of indicators and criteria. It is important to conduct a systematic evaluation of the budget process, which can be significantly improved by assessing the compliance of the level of services with the expenditure of funds.

The above areas of research involve the use of quantitative and qualitative analysis of the fiscal efficiency of taxes based on relevant indicators [26].

The ratio of indicators can be calculated in different ways. Thus, the analysis of the impact of the tax burden on the state economy involves the calculation and characterization of such indicators:

1) fiscal significance of a particular tax in the state budget – characterizes the fiscal efficiency of tax administration under a certain system of implemented tax decisions, reflects the share of tax revenues in budget revenues and is calculated by the formula:

$$Sf = \frac{Tr_i}{SB} * 100\%, \quad (1)$$

where Sf – fiscal significance of the tax in the State Budget;

Tr_i – tax revenues of the i-th type of tax to the State Budget for the year;

SB – State Budget revenues for the year.

This coefficient helps to determine how the real value of revenues of a particular type of tax has changed.

2) fiscal significance of a particular tax in the state GDP is a quantitative indicator that characterizes the redistribution of GDP through the state budget and is calculated by the formula:

$$Sf = \frac{Tr_i}{GDP} * 100\%, \quad (2)$$

where Sf – fiscal significance of the tax in the GDP of the state;

Tr_i – tax revenues of the i-th type of tax to the State Budget for the year;

GDP – gross domestic product for the year.

The main budget-forming taxes are value added tax, corporate income tax and personal income tax. On the example of these types of taxes we will calculate the system of fiscal efficiency indicators. Let us consider the fiscal significance of value added tax, corporate income tax and personal income tax in the State Budget of Ukraine during 2018–2021 (Tab. 8).

Table 8

Calculation of the fiscal significance of VAT, income tax and personal income tax in the State Budget of Ukraine during 2018–2021*

Indicator	Year			
	2018	2019	2020	2021
1	2	3	4	5
State budget revenues, UAH million	928108,3	998278,9	1076016,7	1296852,9
VAT, UAH million	374508,2	378690,2	400600,1	536489,2
VAT share in state budget revenues	0,40	0,38	0,37	0,41
Fiscal significance of VAT, %	40,35	37,93	37,23	41,37
Income tax, UAH million	96882,2	107086,3	108695	147751,7
Income tax share in state budget revenues	0,10	0,11	0,10	0,11
Fiscal significance of the income tax, %	10,44	10,73	10,10	11,39
Personal income tax, UAH million	91741,8	109954	117281,3	137555,2
Personal income tax share in state budget revenues	0,10	0,11	0,11	0,11
Fiscal significance of the personal income tax, %	9,88	11,01	10,90	10,61

**compiled by the author*

The fiscal significance of value added tax in the budget of Ukraine during 2018–2020 tends to decrease. In 2018, the share of VAT was 40.35%, in 2019 it decreased to 37.93%, and in 2020 – to 37.23%. This indicates that the fiscal efficiency of tax administration in the system of implemented tax decisions is deteriorating, the fiscal significance of VAT in the budget of Ukraine is declining and the real value of tax revenues is decreasing. The deterioration of the situation is primarily due to the COVID-19 pandemic, which has resulted in a decrease in the production and import of goods, as well as a decrease in the solvency of the population. In 2021, there is a noticeable increase in the fiscal significance of VAT to 41.37%.

The value of the fiscal significance of corporate income tax during 2018–2020 ranged from 10.1% to 10.73%, and in 2021 increased to 11.39%, which was due to a sharp increase in revenues from this type of tax by 1.36 times compared to the previous year.

The fiscal significance of personal income tax was the highest in 2019 – 11.01%, which is due to a decrease in the fiscal significance of value added tax. During 2020–2021, the value of this indicator gradually decreased and at the end of the analyzed period amounted to 10.61%.

The indicators of the fiscal significance of value added tax, income tax and personal income tax in the GDP of Ukraine during 2018–2021 are presented in Table 9.

Table 9

Calculation of the fiscal significance of VAT, income tax and personal income tax in the GDP during 2018–2021*

Indicator	Year			
	2018	2019	2020	2021
1	2	3	4	5
GDP (real), UAH million	3083409	3675728	3818456	4363582
VAT, UAH million	374508,2	378690,2	400600,1	536489,2
VAT share in GDP	0,12	0,10	0,10	0,12
Fiscal significance of VAT, %	12,15	10,35	10,49	12,29
Income tax, UAH million	96882,2	107086,3	108695	147751,7
Income tax share in GDP	0,03	0,03	0,03	0,03
Fiscal significance of the income tax, %	3,14	2,91	2,85	3,39
Personal income tax, UAH million	91741,8	109954	117281,3	137555,2
Personal income tax share in GDP	0,03	0,03	0,03	0,03
Fiscal significance of the personal income tax, %	2,98	2,99	3,07	3,15

**compiled by the author*

In order to offset the price factor, the real GDP is used in the calculations, which reflects the market value of final goods and services produced in Ukraine during the year and which is measured in constant prices (money that has constant purchasing power) and is a more accurate indicator of the functioning of the national economy compared to nominal GDP. The fiscal significance of VAT in Ukraine's GDP in 2019 tends to decrease: from 12.15% to 10.35%. In 2020, there is a noticeable increase of 0.19%, and in 2021 – by another 1.8% and amounts to 12.29%. The fiscal significance of corporate income tax has been gradually decreasing: from 3.14% in 2018 to 2.85% in 2021, and in 2021 there is a sharp increase to 3.39%. The fiscal significance of personal income tax increased throughout the study period and amounted to 3.15% in 2021. Since these indicators characterize the redistribution of GDP through the state budget, it can be argued that value added tax, corporate income tax and personal income tax have little fiscal significance.

Analysis of the efficiency of tax revenue collection involves the calculation and characterization of the following indicators:

1) tax collection ratio is a quantitative indicator that characterizes the efficiency of tax administration. The normative value of this indicator is 1.

$$TCR = \frac{\text{Number of taxes actually received by the State Tax Service of Ukraine}}{\text{Number of planned tax revenues}}, \quad (3)$$

where TCR – tax collection rate for the i-th tax period.

This coefficient allows to estimate the real amount of tax revenues to the budget from the planned revenues. Let us calculate this indicator on the basis of value added tax, income tax and personal income tax (Tab. 10).

Table 10

Calculation of the tax collection ratio of VAT, income tax and personal income tax during 2018–2021*

Year		2018	2019	2020	2021
Value added tax	Actual revenues	374508,2	378690,2	400600,1	536489,2
	Planned revenues	386090,9	416143,1	388932,1	531177,4
Tax collection ratio		0,97	0,91	1,03	1,01
Income tax	Actual revenues	96882,2	107086,3	108695	147751,7
	Planned revenues	81413,6	95612,8	110913,3	146288,8
Tax collection ratio		1,19	1,12	0,98	1,01
Personal income tax	Actual revenues	91741,8	109954	117281,3	137555,2
	Planned revenues	90833,5	105725,0	110642,7	138944,6
Tax collection ratio		1,01	1,04	1,06	0,99

**compiled by the author*

Thus, the value added tax collection ratio during 2018-2019 was less than the normative value, which indicates insufficient revenues from this type of tax and, accordingly, failure to fulfill the budget plan. In 2020, there was a noticeable improvement in the situation and an increase in the coefficient to 1.03, which means that the efficiency of VAT tax administration has increased. In 2021, the collection ratio decreased to 1.01, which is higher than the normative value of 1 and indicates that the budget plan for this type of tax was exceeded by UAH 6920.2 million.

The corporate income tax collection ratio gradually decreased during 2018–2020: from 1.19 to 0.98, which indicates that the budget plan was not fulfilled. The failure to fulfill the plan in 2020 is primarily due to the spread of the pandemic COVID-19 and related quarantine restrictions, which led to a decrease in the number of enterprises, their profits and, accordingly, the tax base. In 2021, there was a noticeable increase to 1.01 – actual revenues exceeded the planned by UAH 1462.9 million.

The personal income tax collection ratio gradually increased during 2018–2020, which indicates that the plan was over fulfilled by 1, 4 and 6%, respectively, but in 2021 there was a noticeable decrease to 0.99, which means that the efficiency of personal income tax administration decreased.

4) expenditures on tax collection per capita is an indicator that characterizes the level of expenditures of each member of society for the maintenance of the State Tax Service of Ukraine:

$$TCC = \frac{\text{BExpenses for the maintenance of the State Tax Service of Ukraine}}{\text{Number of resident population}}, \quad (4)$$

where TCC – tax collection costs per capita, UAH/person.

This indicator reflects the ratio of funds spent on the maintenance of the State Tax Service of Ukraine to the total population of the country.

5) indicator of the workload per employee of the State Tax Service of Ukraine on the collection of a particular type of tax – characterizes the workload per employee.

$$LF = \frac{\text{Number of payers of a particular type of tax}}{\text{Number of employees actually working in the STS of Ukraine in the } i\text{-th department}}, \quad (5)$$

where LF – load factor on an employee of the State Tax Service of Ukraine.

Indicates the number of taxpayers of a particular type of tax per one tax inspector of the relevant tax collection department and the efficiency of his work – the amount of tax revenues collected.

6) tax efficiency indicator – characterizes the cost of collecting a particular type of tax

$$TE = \frac{\text{Number of taxes actually received by the State Tax Service of Ukraine}}{\text{Costs of administering the type of tax}}, \quad (6)$$

This indicator characterizes fiscal efficiency, which is a component of the overall tax efficiency. It shows that minimizing the costs of collecting a particular type of tax and preventing tax evasion will increase fiscal efficiency.

7) tax efficiency ratio in GDP – is defined as the share of revenues of a particular type of tax in GDP divided by the standard rate and is used as a total indicator of the efficiency of a particular type of tax

$$TER = \frac{Tr_i}{GDP} * \frac{100\%}{Tr}, \quad (7)$$

where TER – tax efficiency ratio;

Tr – tax rate.

Although the ratio of tax efficiency to GDP is used as a diagnostic tool to assess a particular tax, the limitations of this tool are significant. The error in the definition of GDP significantly affects the estimate and therefore can complicate comparisons between regions and countries. In addition, such an estimate works only if there is only one tax rate. Efficiency of value added tax, income tax and personal income tax in GDP (Tab. 11).

Table 11

Dynamics of VAT, income tax and personal income tax efficiency ratio in GDP?, 2018–2021*

Indicator	Year			
	2018	2019	2020	2021
GDP (real), UAH million	3083409	3675728	3818456	4363582
VAT, UAH million	374508,2	378690,2	400600,1	536489,2
VAT share in GDP	0,121	0,103	0,105	0,123
Efficiency of VAT revenues	0,607	0,515	0,525	0,615
Income tax, UAH million	96882,2	107086,3	108695	147751,7
Income tax share in GDP	0,031	0,029	0,028	0,034
Efficiency of income tax revenues	0,175	0,162	0,158	0,188
Personal income tax, UAH million	91741,8	109954	117281,3	137555,2
Personal income tax share in GDP	0,030	0,030	0,031	0,032
Efficiency of personal income tax revenues	0,165	0,166	0,171	0,175

*compiled by the author

In 2019, the efficiency of VAT revenues decreased from 0.607 to 0.515. This indicates a decrease in the share of VAT revenues in real GDP. But in the future, there was a noticeable improvement to 0.525 in 2020 and in 2021 this indicator was 0.615. The share of revenues has increased and the total VAT efficiency indicator is quite significant. The efficiency of income tax revenues gradually decreased during 2018-2020: from 0.175 to 0.158. In 2021, a sharp increase to 0.188 is noticeable, which was due to an increase in revenues from this type of tax by UAH 39056.7 million and, accordingly, the share in Ukraine's GDP. The efficiency of personal income tax revenues increased throughout the analyzed period: from 0.165 in 2018 to 0.175 in 2021, the share of personal income tax in GDP also gradually increased – by 0.001 each year.

8) coefficient of unevenness of tax revenues – characterizes systematic fluctuations in tax revenues

$$\text{Cutr max} = \frac{\text{Max tax revenue for the } n\text{-th period}}{\text{Average income}} \quad (8)$$

$$\text{Cutr min} = \frac{\text{Min tax revenue for the } n\text{-th period}}{\text{Average income}} \quad (9)$$

This coefficient shows that the actual levels of the dynamic series of tax revenues vary under the influence of various factors, deviating from the main trend of development. The simplest method of assessing systematic fluctuations is to determine these coefficients, which are calculated as the ratio of the maximum and minimum levels of the dynamic series to the average. The greater the irregularity of the process, the greater the difference between the two coefficients. The calculation of the coefficients is given in Table 12.

Table 12

Coefficient of unevenness of VAT, income tax and personal income tax revenues during 2018–2021 years*

Revenues, UAH million	Year				Average annual revenues, UAH million	Cutr max	Cutr min
	2018	2019	2020	2021			
Value added tax	374508,2	378690,2	400600,1	536489,2	422571,9	1,27	0,89
Income tax	96882,2	107086,3	108695	147751,7	115103,8	1,28	0,84
Personal income tax	91741,8	109954	117281,3	137555,2	114133,1	1,21	0,80

**compiled by the author*

The calculations show that tax revenues during the period under study are quite uniform. Practical use of the system of indicators of fiscal efficiency of taxes at the state level involves:

- reorientation of the state to an intensive way of development and achievement of a higher level of efficiency in dynamics;
- study of reserves for further improvement of financial and economic activity of enterprises on the basis of implementation of achievements of scientific and technical progress;
- improvement of technology and production organization;
- creation of an effective mechanism for improving the efficiency of management in the field of taxation.

The result of the analysis of the fiscal efficiency of the value added tax is that during 2018–2020, the tax administration under a certain system of implemented tax decisions is deteriorating and the fiscal significance of the value added tax and corporate income tax in the budget and GDP of the state is decreasing, but in 2021 there is a noticeable improvement in the situation. Assessment of the effectiveness of the value added tax, corporate income tax and value added tax according to the above indicators allows more accurate planning of state budget revenues from these budget-forming taxes. This can become the basis for the development of measures to improve the regulatory and fiscal impact of these types of taxes, eliminate shortcomings in their tax mechanisms, form a rational structure of tax revenues of the budget, and contribute to the development of effective tax policy.

Based on the assessment of the effectiveness of the tax system of Ukraine, taking into account the unprecedented risks and threats, it is legitimate to highlight the following main problematic aspects:

- martial law in Ukraine;
- instability of tax legislation;
- high level of corruption in the country and shadowing of the national economy;
- complicated tax administration process;
- uneven burden on taxpayers;
- low level of tax responsibility and tax culture of citizens and business entities.

Accordingly, the priority areas of reforming the tax system of Ukraine are as follows:

- 1) further European integration of the relevant legal framework and further implementation of BEPS;
- 2) development of a comprehensive systemic strategy for combating corruption and the shadow economy;
- 3) simplification of tax administration;
- 4) ensuring the correct work of tax and related executive bodies;
- 5) formation of human resources and tax culture [33, 34].

Thus, in order to create a solid economic foundation for Ukraine's integration into the world economic system, amendments to the tax system are one of the most important European integration steps. The EU tax legislation should be implemented into the Ukrainian legislation, ensuring uniform application of those tax provisions that are harmonized at the EU level [35].

The structure of the EU tax policy is represented by two main components: direct taxation, which remains the exclusive responsibility of the Member States, and indirect taxation, which affects the free movement of goods and the freedom to provide services in the single market. The proper functioning of the tax system is also ensured through administrative cooperation [36].

Indirect taxation provides for the establishment of equal conditions for companies of all Member States, directly in terms of value added tax. The main principles of taxation are described in the Association Agreement between Ukraine and the EU. Separate articles of the Agreement outline the provisions related to the harmonization of VAT and excise tariffs. In particular, the parties to the Agreement shall enhance and strengthen cooperation aimed at improving and developing the tax system and tax authorities of Ukraine, in particular strengthening the collection and control capacities, with an emphasis on VAT refund procedures to avoid the accumulation of arrears, ensuring effective tax collection, strengthening the fight against tax fraud and tax evasion. As regards excise tariffs, the parties develop cooperation and harmonize policies to counteract and combat fraud and smuggling of excisable goods. This cooperation shall include, inter alia, the

gradual convergence of excise rates on tobacco products, taking into account the limitations of the regional context, including through dialogue at the regional level and in accordance with the 2003 WHO Framework Convention on Tobacco Control [37].

With the assistance of the EU4PFM project, a comprehensive analysis of the VAT legislation was carried out and only minor inconsistencies with the EU VAT Directive were identified. However, there are directives that are not included in the Association Agreement. They directly relate to the administrative regulation of excise taxes. In particular, the creation of a network of excise warehouses that meet the legal and technical requirements of the EU, but not the establishment of tax rates. This requirement is important in the context of preventing the circulation and production of contraband and counterfeits in the single market.

Direct taxation in the EU is based on a balance between the standards of taxation of individuals and legal entities. A special place is occupied by measures to prevent tax evasion and double taxation.

EU membership does not deprive the country of full independence in decision-making, it requires a certain mutual integration in selected areas. Tax authorities of the EU member states should cooperate in the field of information exchange, in order to carry out joint control measures and facilitate the collection of tax debts. This will be crucial for minimising tax fraud [37].

The implementation of the EU tax and fee administration system requires further amendments to the legislation, in particular in terms of the mandatory collection and provision of certain data by businesses for their further transfer to the competent authorities of the Member States. The list of data will include: information from state registers; information relating to wages and incomes of residents of other member states; data on various operations of payment companies; information coming from electronic platforms relating to the income of sellers.

It should be noted that in order to promptly exchange information on financial accounts, it is necessary to implement certain IT solutions. In particular, the State Tax Service of Ukraine is obliged to join the following networks and systems (Tab. 13).

Table 13

Characteristics of systems and networks necessary for information exchange in accordance with the requirements of EU directives*

System name	Characteristics
Specially secured network CCN/CSI	Common IT platform for the exchange of tax information by the competent EU authorities
IT system of automatic collection and exchange of tax information	Data from state registers on wages and incomes of residents of other member states, data from financial institutions on accounts, data from payment companies on transactions, information from electronic platforms on the income of sellers, etc.
VIES (VAT's information exchange systems)	Confirmation of VAT identification number of economic operators registered in the EU for cross-border transactions
E-commerce tax One-StopShop (OSS)	Registration of a VAT payer in electronic form in one Member State (applies to cross-border online sellers)
Excise Movement and Control System (EMCS)	computerised system for monitoring the movement of excise goods (alcohol, tobacco and energy).

**compiled by the author for [33, 35, 36, 37]*

Thus, a non-discriminatory, simple and clear tax system with a mobile and adaptive tax policy is necessary to create favorable conditions for doing business, restoring and developing the national economy. In the context of European integration processes, the reform of the tax system of Ukraine is a priority. In this aspect, it is necessary to adapt the tax legislation of Ukraine to the EU legislation and requirements, as well as to implement a number of measures to build the administrative capacity of the tax administration.

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CHAPTER 3. CURRENT DOMINANTS OF CORPORATE FINANCE MANAGEMENT

MODELS AND TOOLS OF ANTI-CRISIS FINANCIAL ENTERPRISE MANAGEMENT IN MODERN CONDITIONS

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In recent years, the economy of Ukraine has experienced significant upheavals. Initially, the COVID-19 pandemic fundamentally changed the whole world and affected the country's economy, leaving thousands of people without work. As in the rest of the world, business in Ukraine suffered from its influence. Then Russia's full-scale war against Ukraine dealt a devastating blow to our economy. In this regard, it is extremely important to determine and constantly monitor the business in order to quickly reduce the negative consequences of the specified events using modern anti-crisis financial management tools.

At the beginning of 2021, there were 1.9 million enterprises in Ukraine. Including: 16,500 medium-sized, 339,000 small, 1.48 million individual entrepreneurs and 446 large enterprises [1]. Only 19.8% of SMEs operated as legal entities, the rest as individual entrepreneurs.

As experience shows, small and medium-sized enterprises are more efficient than large ones. According to experts' estimates, labor productivity at SMEs in Ukraine is on average 10-20% higher than at large enterprises. In terms of the number of employees, SMEs significantly outnumber large ones. If we compare the number of employed and hired workers, then in large enterprises it will be the same number, in medium-sized enterprises the deviation is insignificant, but there are many more employed in small and micro-businesses than hired workers [2]. Owners and founders of small and micro businesses not only create jobs and hire employees, but also work independently in their own enterprises.

In 2020, the coronavirus put the issue of the survival of enterprises and the preservation of jobs at the forefront of economic problems. It is important that the entrepreneur has sufficient financial resources at his disposal to maintain his employees and increase the volume of activity. Restrictive anti-pandemic measures negatively affected the activity of SMEs and led to the following consequences [2; 3; 4]:

- due to the ban on conducting business, some entrepreneurs did not have the opportunity to fully function;
- the decrease in the population's income led to a decrease in their solvency, and therefore to a decrease in consumer demand for products;
- a significant share of business entities (including trade, hospitality and tourism) could not withstand quarantine restrictions and had to close;
- a large number of business subjects did not have enough financial resources to overcome the consequences of COVID-19;
- the shadow employment sector and hidden unemployment continued to increase;
- chains of added value collapsed, which had a negative impact on the economy as a whole.

During the first half of 2020 the number of unemployed increased rapidly; incomes of the population and incomes of entrepreneurs decreased. The second half of April 2020 was the most critical for business. Due to the quarantine restrictions introduced in Ukraine, about 29% of

Ukrainian companies were forced to temporarily suspend their activities, and 6% liquidated their business [5; 6]. A third of businesses (mainly SMEs) showed a drop in income by 25-50%, a third - by 50-75%, and another third (mainly micro-enterprises) - by 90-100% since the beginning of the quarantine. The same businesses dismissed up to 50% of their staff [7; 8]. At the same time, every fourth business had the potential to withstand 2-3 months of full-time work in quarantine conditions and not go bankrupt. The most negative impact was felt by the types of activities for which the quarantine bans were more extensive - retail trade, transport, services. Many public catering, entertainment, etc. establishments were closed.

The pandemic has also changed the culture of doing business, which was catalyzed by the forced changes introduced during the quarantine. This is the mode of online work, which a significant part of entrepreneurs switched to, reacting to the ban on mass gatherings and minimizing contacts. But about 35% of small entrepreneurs could not repurpose themselves due to the peculiarities of their business model. The tourism industry, cinemas, organizers of various offline events have not been able to quickly adjust and are not able to work in an online format. At the same time, delivery services and Internet trade, on the contrary, received a significant increase in orders and customers and continued to work [2; 4].

According to research at the end of 2021, in order to reach the pre-quarantine level of development, according to 20% of entrepreneurs, they would need at least 6 months; for 39% – about 1 year; for 17% - 2 years, and for 7% - more than 2 years, and only 4% did not lose their pace of development at all [2].

Today, Ukraine is in a state of war. The hostilities, which began on February 24, 2022, deal a powerful blow to the economy and huge damage to infrastructure. According to the estimate of the Ministry of Economy as of mid-summer, the total losses of our economy due to the war, including both direct and indirect, reach up to \$600 billion. The economy of Ukraine loses 50-60% of its "unproduced" GDP. Revenues to the state budget decreased by 70% from customs authorities and by 30% from tax authorities [9].

Most of the enterprises were affected. Almost all logistics routes were destroyed. Unfortunately, 23% of enterprises could not withstand this. 62% lost customers as a result of a change in their location, and 26% of entrepreneurs partially or completely lost suppliers. 35% of medium-sized businesses, 43% of small businesses, and 62% of micro-enterprises stopped exporting and were unable to resume it.

Up to 58% of businesses in Ukraine managed to partially work or completely stop functioning. Only 18% work as before. Industry transformation, as one of the ways to save business from closure, turned out to be relevant - in 21% of cases, businesses are in the process of industry transformation, and 16% have already been completely or partially transformed [10].

The question of how much the entrepreneurs' financial reserves will be is a pressing question. According to official statistics on the Diya website, 34% of companies estimate their financial stability in 6 months, 20% believe that they will last a few months, the remaining 20% - a year, and another 19% will have enough financial reserves for a period of more than a year. 5% have already run out of financial reserves. At the same time, in financial matters, entrepreneurs rely on their own strength - 92% of companies did not use state or international programs to support their business [11].

Also, the level of unemployment has exceeded 30%, the level of wages in various fields has decreased from 9 to 58%, and the arrears for the payment of wages amount to UAH 3 billion. The number of businesses that pay their employees in full is currently 63%. However, 13% reduced the amount of payments. 4% of companies had to send employees on unpaid leave.

Martial law caused a record increase in June 2022 of the NBU discount rate by 15 percentage points. - up to 25%, which, in turn, led to an increase in business lending rates by commercial banks, which is the basis of supporting the economy. Accordingly, the demand for credit resources decreased while simultaneously deteriorating the quality of service of current credit portfolios [12].

But despite everything, entrepreneurs are trying to adjust their business to military operating conditions. Staff who are able to work remotely work successfully. Most of the companies from the East of Ukraine transferred their business to the West, and Lviv became a center for IT specialists. International companies and funds are already developing investment projects that they would like to implement after the end of the war in Ukraine.

Currently, all types of business - small, medium, and large - are in a difficult situation - despite a significant reduction in income, entrepreneurs must fulfill their financial and debt obligations. Small business entities do not have enough "safety margin" to operate at a loss for an indefinite period of time. That is why small and medium-sized businesses urgently need increased state support.

In an unstable economic situation and during a war, the probability of bankruptcy of enterprises increases significantly. To prevent this, it is necessary to use a certain set of measures, namely the anti-crisis financial management system, which will help the enterprise to resume work.

The presence of an anti-crisis financial management system at the enterprise is an important competitive advantage for it. Its presence reduces the negative consequences of a crisis by five times. This makes it possible to successfully overcome it and enter a new stage of the enterprise's development.

The system of anti-crisis financial management is a mandatory element of activity. Almost all large foreign corporations have an effective anti-crisis financial management system. While in Ukraine these are only units of mostly large industrial enterprises. Small domestic enterprises hardly carry out any measures related to anti-crisis financial management. First, the owners believe that the operation of such a system requires additional costs. Secondly, the management of enterprises is not sufficiently knowledgeable and has no experience regarding the main aspects of the anti-crisis financial management system, which would allow them to prevent the emergence of crisis processes in a timely manner.

Anti-crisis management should be a mandatory element of a modern enterprise and should be aimed not only at exiting the enterprise from a crisis state, but also at preventing the crisis, preventing its negative consequences, etc.

Since anti-crisis financial management is a system that includes a complex of interconnected elements, it is appropriate to consider its structure. For this purpose, Figure 1 shows the components of the enterprise's anti-crisis financial management system. In total, the above elements form a system of anti-crisis financial management at the enterprise. The deviation or absence of any of the elements makes normal anti-crisis financial management impossible.

The influence of external and internal factors on the company's activities can be determined thanks to PEST and SWOT analysis. These methods are important strategic tools for analyzing the company's external environment, which is especially relevant today.

Depending on the activity of the enterprise and its chosen strategy, financial management is based on an appropriate set of financial instruments. In general, the financial management system includes a set of management decisions regarding the movement of financial funds and their effective use, a system of norms and regulations on the rules of conducting financial calculations, a

financial plan and a system of documents reflecting the results of various types of activities (enterprise balance sheet, profit and loss statement, cash flow report, etc.).

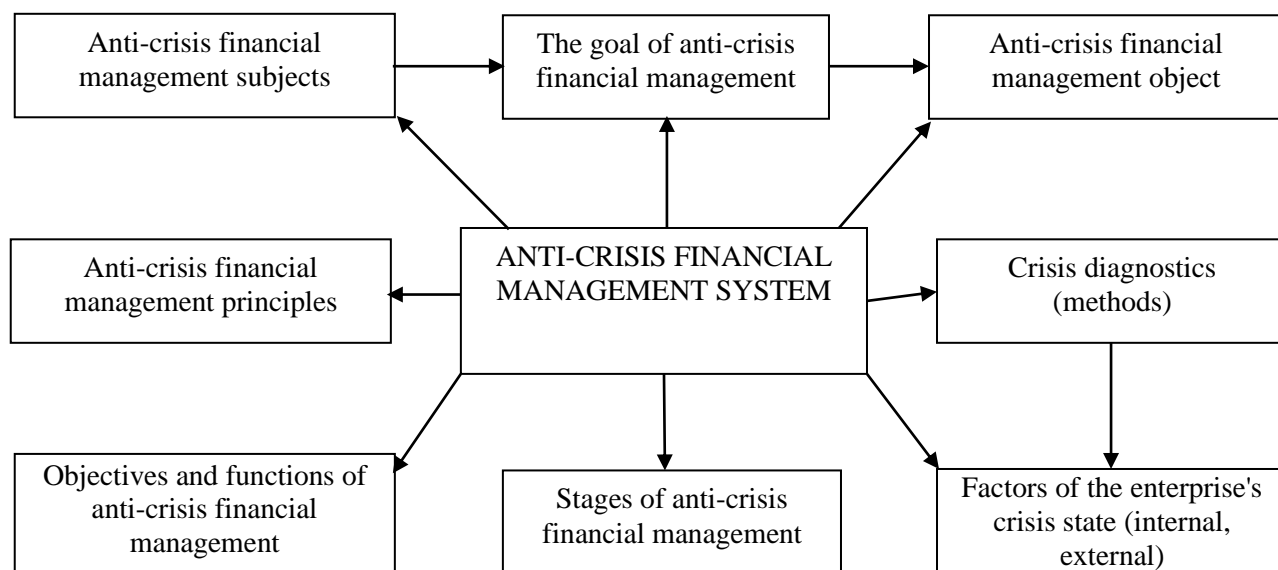


Fig. 1. Components of the anti-crisis financial management system of the enterprise [13]

In anti-crisis management, the financial system of the enterprise must effectively solve the following tasks:

- anti-crisis financial planning (content, order of development and importance of anti-crisis measures to improve the state of the enterprise, forecasting of financial indicators after the implementation of anti-crisis measures);
- analysis of financial activity and financial control (study of the current financial state of the enterprise, possibilities of restoring the solvency of the enterprise, determination of liquidity levels, profitability; analysis of capital use, etc.);
- funding sources (resolving the issue of the possibility of obtaining own financial resources, for example, through the implementation of fixed assets, determining the possibilities of attracting short-term and long-term lending (the latter is more acceptable within the framework of anti-crisis management, etc.);
- management of working capital and its structure;
- management of the company's payables.

The study showed that for the effective solution of these tasks, it is necessary to emphasize the creation of a budgeting system, conduct a self-sustaining policy, use financial analysis, and introduce the principles of investment management.

One of the types of anti-crisis financial management may be applied at different enterprises (taking into account the crisis situation):

- active - oriented, on forecasting crisis phenomena, but involves the development of measures not only to adapt the enterprise to the environment, but also the environment to its requirements;
- passive – aimed at eliminating crisis phenomena;
- preventive – focused on the search and forecasting of such trends that may negatively affect the company's activities, as well as the formation of preventive and adaptive measures;

– reactive - aimed at identifying weaknesses in the company's activities, localization, control of their condition, which is the basis for the implementation of corrective measures;

– adventurous - involves actions "by inspiration", without analysis, and forecasting; in this case, as a rule, not the causes of the crisis, but its symptoms are eliminated.

The most effective is reactive, preventive and active anti-crisis management of the enterprise. At the same time, the most undesirable is adventurous and passive anti-crisis management. The majority of Ukrainian enterprises carry out exactly adventurous anti-crisis management. Because of this, a large number of bankrupt enterprises.

Active anti-crisis management is characterized by an initial response to operational measures, when the enterprise is not yet prepared for unusual strategic threats, but instead of applying a consistent series of appropriate measures, it analyzes data, selects and implements combinations of countermeasures that seem optimal. When their low performance becomes obvious, the company decisively moves to strategic anti-crisis management measures.

With active anti-crisis management, a diagnosis of the beginning of a crisis state at the enterprise is carried out (before the moment T_0) and, starting from the moment T_0 , a number of anti-crisis measures are carried out (for the period $T_1 - T_0$) aimed at preventing the negative consequences of the crisis, production and financial losses. Until the end of the crisis impact T_1 , the company has total losses $Zzag$ (1).

$$Zzag(T) = \int_0^{T_1} F_1(T) - \int_{T_0}^{T_1} F_2(T) \quad (1)$$

where $F_1(T)$ is the company's expenses at the time T of the crisis;

$F_2(T)$ – expenses of the enterprise for anti-crisis management;

$F_m(T)$ – possible losses of the enterprise without anti-crisis management.

Reactive anti-crisis management is based on the assumption that difficulties can be overcome by conventional, albeit radical, operational countermeasures. Such a response involves the consistent application of certain measures, starting with those that seemed to be successful in the past. A reactive form of management resorts to strategic measures only when it continues to suffer from losses despite operational measures and austerity regime. At this point, a lot of time has already been spent, significant losses are accumulating and the company has large expenses.

With reactive anti-crisis management, the beginning of the reaction to crisis manifestations occurs with a delay in relation to the moment of the rational beginning of action T_0 by the time interval (T_0, T') . Such behavior is characteristic of large enterprises with many years of successful experience, when the initial data (factors) of crisis phenomena are in practice insufficient for the implementation of appropriate anti-crisis management measures aimed at preventing crisis phenomena. The equation of total losses with reactive control will have the form (2).

$$Zzag(T) = \int_0^{T_1} F_1(T) - \int_{T'}^{T_1} F_2(T) \quad (2)$$

In this case, the reaction begins before the threat of the emergence of a crisis state, but too late to neutralize the crisis impact at its onset.

Some authors, who in their works touch on the issues of anti-crisis management [14], believe that health measures should be implemented only when the financial results of the enterprise's functioning have already become tragic. But in this case, efforts to bring the company out of the crisis are much more difficult than preventing wrong and erroneous steps. Therefore, from the point

of view of the authors, it is very important to build such a management system that is aimed at preventing crisis situations and eliminating problems before they become irreversible, while carrying out rehabilitation and, if necessary, comprehensive restructuring (restructuring) of the enterprise. This management system should also acquire its specific features at each of the management levels and be united by a special program of strategic development of the enterprise.

In the conditions of anti-crisis management, the main requirements for planning and managing the functioning of the enterprise are the elimination and prevention of crisis phenomena in all types of enterprise activities, ensuring effective functioning. These requirements can be reflected in the structure of economic-mathematical models of the enterprise according to the directions of its activity: production, logistics, marketing, finance, personnel, organization. According to these directions, the model should contain the relevant mechanisms of the enterprise, the sources of their formation, the inverse relationship between the volume of production and sales of products and production resources.

The models of anti-crisis management of the enterprise can be divided into dynamic and static ones. Dynamic models include models for determining the volume of production, determining the necessary financial funds, determining the price of products, calculating the required profit, the impact of deviations in the price of resources on the volume of production, determining the terms of conversion of technical systems, etc. Static models include models of resource planning, optimization of equipment loading, distribution of equipment and personnel by types of work, selection of product manufacturing technology, planning of product assortment and demand for goods, etc. Let's consider some approaches to building anti-crisis management models according to the company's activities. The following methods can be successfully used to model the company's activities (Table 1).

Table 1

Methods of modeling anti-crisis management of enterprise activities

Modeling method	Advantages	Disadvantages
1	2	3
Game theory	the possibility of collecting and processing unclear and incomplete information	considerable labor intensity
Human-machine systems	division of labor between the computer system and the specialist - all calculations are performed by the computer, and all critical decisions are formed by the specialist	the need to build distributed decision-making support systems with subsequent constant renewal, information overload
Artificial intelligence	high efficiency of work with highly dynamic situations that are standardized	in unstable conditions, when information is weakly formalized, these methods are not effective
Program-target planning	high accuracy of planning results	under the conditions of dynamic economic development, there is a need to constantly renew the goals
Strategic management	the possibility of effective planning of the company's activities at the top level	these methods are qualitative and do not allow detailing the quantitative indicators of the enterprise's activity

1	2	3
Mathematical models of economic interaction (theories of organizational structures)	high efficiency in conditions of complete timely information	in conditions of incomplete and inaccurate information, significant errors occur, which can cause the emergence of crisis phenomena and their deepening
Enterprise management based on economic efficiency analysis	high efficiency with well-formalized criteria and in conditions of full clear information	under the conditions of incomplete and unclear information that changes quickly, the presence of non-formalized criteria, the use of these methods is not effective
Analysis of risk situations in the economy	high efficiency in conditions of incompleteness, vagueness and probabilistic nature of information, which allow taking risk premiums into account	under the conditions of an underdeveloped financial market and the uniqueness of the project, these methods lose their advantages
Investment evaluation	high efficiency under the conditions of accepted criteria	there are certain problems of forming criteria and establishing their compliance with changes in the external and internal environment

**Compiled by the author according to [14]*

The main economic-mathematical models that ensure effective anti-crisis management of the enterprise are obtained on the basis of formalized accounting of financial, economic, production relations between the main divisions of the enterprise in market conditions.

The models considered in the work reflect the most significant patterns of transformation of resources (material, financial, labor) into products manufactured by the enterprise and are expressed in the form of profit received after the sale of these products. Separate models were developed for each direction of the company's activity. Due to the fact that the solution of each model provides optimal solutions for the corresponding direction of the company's activity and does not always meet the criterion of optimality of the company's functioning as a whole, multi-criteria optimization methods were considered. They coordinate local optima according to the company's activities, and also take into account the influence of unstable elements of the external environment on the company's activities.

Analysis of the models shows that the dominant factor is the production volume $X(n)$, on which many other indicators depend. At the same time, the indicator $X(n)$ in various models is presented as an output parameter of the model or as an input parameter that is specified. Therefore, the main block of the complex model of anti-crisis management of the enterprise is the block for calculating the production volume $X(n)$. Variable and fixed costs of production $U(n)$ and $Z(n)$ belong to the parameters that the managers of the enterprise can actively influence by improving the manufacturing technology (reducing material intensity, energy intensity, specialization of production, its mechanization and automation, etc.), increasing labor productivity, changes the number of personnel and terms of payment, etc. Control of these indicators is important to ensure efficient production. It is advisable to have special blocks in the complex model for costs $U(n)$ and

$Z(n)$. Thus, the central general directions of anti-crisis management of the enterprise are the study of the volume of production $X(n)$, the block of variable costs $U(n)$ and the block of fixed costs $Z(n)$.

– Determining the volume of production $X(n)$ allows you to prepare options for rational solutions in advance for emerging and forecasted changes in resource prices, changes in own and borrowed funds, adjusting production plans, obtaining loans, changes in selling prices. This makes it possible to predict the onset of moments of destabilization of production (emergence of crisis factors) and to use active anti-crisis management as the most optimal type of anti-crisis management to prevent the occurrence of a crisis at the enterprise. Under the conditions of anti-crisis management, when planning the volume of production $X(n)$, it is necessary to achieve the fulfillment of the two most important requirements: ensuring (restoring) the solvency of the enterprise in any period of time and compliance of the enterprise's products with market requirements.

Under the conditions of inconsistency of costs and financial resources, the production volume plan must be adjusted downward or reduce costs, as this may lead to the insolvency of the enterprise. The production volume model $X(n)$ allows you to predict the timing of crisis situations at the enterprise, the conditions for their occurrence, and timely make the necessary management decisions on the implementation of appropriate anti-crisis measures. The application of anti-crisis management in production includes the following measures:

- development of production management goals aimed at overcoming crisis phenomena in production and ensuring sustainable development of the enterprise,
- assessment of the possibilities of achieving the set goals during the operation of the enterprise in the usual or renewed mode,
- choosing an appropriate production strategy,
- its execution and control.

Let's consider the economic and mathematical models of optimal loading of production capacities, the selection of manufacturing technologies of the ordered products that ensure the fulfillment of the order with minimal costs, the optimal distribution of equipment by types of work. Let the production have different types of equipment r ($r = 1, R$), which differ by the type of technology j ($j = 1, n$). This equipment can produce various types of products and ($i=1, l$). At the same time, the useful operating time of the r -th type of equipment is t_r , the rate of machine time consumption of the r -th type of equipment in the production of a unit of the i -th type according to the j -th technology is a_{ij}^r . We denote by X_{ij} - the number of products of the i -th type, produced according to the j -th technology, P_{ij} - the profit obtained from the sale of a unit of products of the i -th type, manufactured according to the j -th technology. The task of modeling is to determine the values of X_{ij} - the volume of manufactured products, according to their types and types of manufacturing technology, in which the maximum profit is ensured under the existing restrictions on the useful operating time of the equipment (with the limitation of t_r). The mathematical formalization has the form (3).

$$\sum_{i=1}^l \sum_{j=1}^n P_{ij} X_{ij} \rightarrow \max$$

$$\sum_{i=1}^l \sum_{j=1}^n a_{ij}^r X_{ij} \leq t_r \quad r = \overline{1, R} \quad (3)$$

$$x_{ij} \geq 0, \quad i = \overline{1, l}, \quad j = \overline{1, n}$$

The model is formed in the form of a linear programming problem, which can be solved by known methods (simplex method, M-method). As a result, we get the optimal plan X_{ij} of loading the enterprise's irreplaceable equipment, which provides the maximum profit. In market conditions, this approach to optimizing the production plan is appropriate when there are no restrictions on the possibility of selling the manufactured products.

Currently, in the economic literature, there are many different tools of anti-crisis financial management, the main ones are shown in Figure 2.

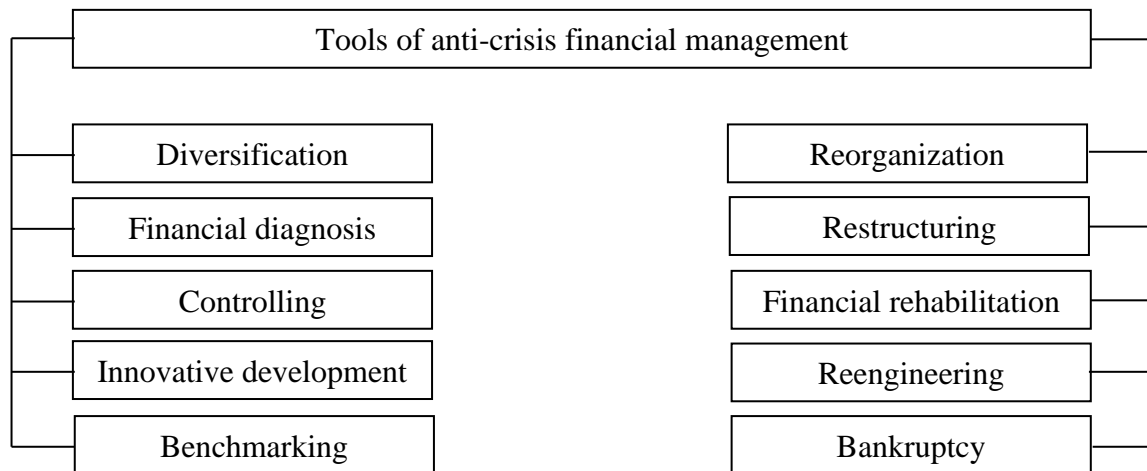


Fig. 2. The main tools of anti-crisis financial management

**Compiled by the author according to [15-17]*

Let's consider each of them. Diversification is one of the most common ways of adapting an enterprise to a crisis and anti-crisis financial management tools. Diversification allows enterprises to obtain financial resources even in the most crisis conditions. Diversification most often takes place by developing a new product or entering new markets. Businesses diversify to manage risk, minimizing potential business damage during economic crises. The main idea is to transition into a business activity that does not react negatively to the economic downturns that the current business activity does. If one of the business areas suffers in the market, the other will help to compensate for the losses and maintain the viability of the enterprise as a whole. A business can also use diversification as a growth strategy. The main tasks of diversification are shown in Figure 3.

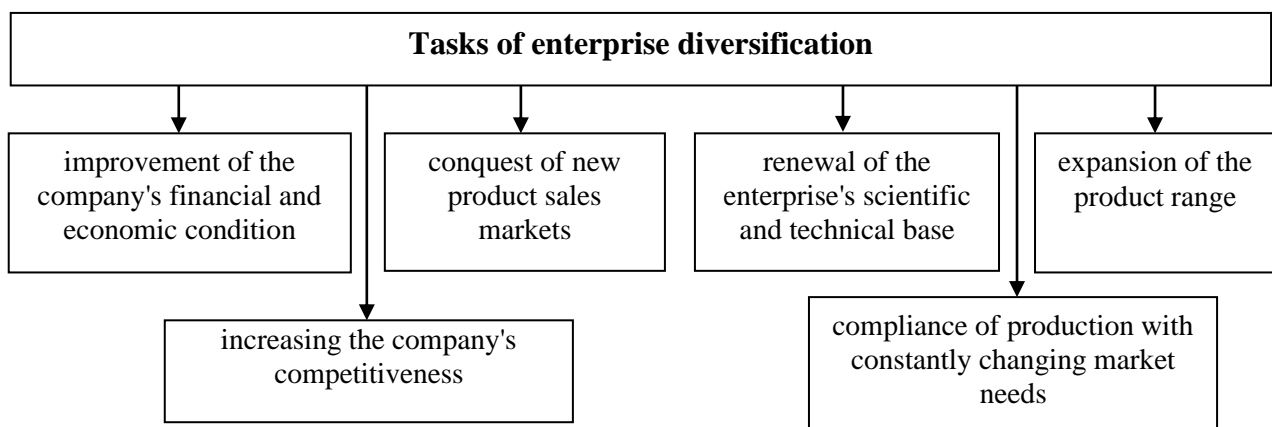


Fig. 3. The main tasks of enterprise diversification

**Compiled by the author*

The next tool is financial diagnosis. It is necessary to identify the primary signs of a crisis state. The use of this tool allows timely response to adverse changes in the company's activities. Financial diagnosis is effective in situations of financial or operational crisis. Also, with the help of this tool, it is possible to identify the company's weak points and determine ways to solve problems.

Financial diagnosis requires a special study of liquidity, profitability, financial structure, as well as other aspects, such as risk, company development and others. Financial diagnostics should be used by absolutely all enterprises without exception. All other tools of anti-crisis financial management are applied based on the results of the conducted financial diagnostics.

Controlling is an effective method of management. This is a synthesis of constant monitoring, control, economic analysis and diagnostics of the financial state (planning, organization of information flows) for making management decisions, which will allow the most complete forecast of future crisis situations and effective anti-crisis management of the enterprise. The use of controlling in anti-crisis management will allow:

- provide information support for decision-making for optimal use of available opportunities and resources, proper assessment of positive and negative activity of the enterprise, as well as prevention and avoidance of bankruptcy and crisis situations;
- increase the speed of managers' reaction to changes in the external and internal environment, increase the flexibility of the enterprise, move from control of the past to analysis and forecasting of the future [18].

Innovative development is currently one of the most relevant and new tools of anti-crisis financial management. Its use involves the introduction of the latest achievements of science and technology, the latest technologies, etc., into the company's activities. The main goal of innovative development is to respond to changes in economic conditions. Those enterprises that carry out balanced innovative activities have a risk of bankruptcy four times lower than other enterprises.

The main tasks of innovative development of the enterprise are to increase competitiveness; compliance of production with consumer needs; revenue growth; access to new sales markets; updating the material and technical base; implementation of resource-saving technologies, etc. No matter how competitive an enterprise is, from time to time it needs reconstruction of production facilities, development of new activities and products, implementation of resource-saving technologies, etc. All this is ensured thanks to innovative development.

Another tool is benchmarking. "Benchmarking" means a continuous process of analysis and evaluation of the activities of competing enterprises [19]. By using benchmarking, companies have the opportunity to follow successful companies, analyze their activities, study business processes and determine why they achieved such results. By comparing the business processes of your company with others, you can determine what exactly needs to be changed in order to become successful or achieve the desired goal. Benchmarking allows the enterprise to constantly update its activities in accordance with the best European practice.

Restructuring is a set of changes in the structure of the enterprise that should positively affect the results of its activity. Restructuring can be used both by enterprises that are in crisis in order to get out of it, and by enterprises that have a satisfactory condition - to increase competitiveness.

The purpose of restructuring is to adapt the enterprise to changing business conditions and increase the efficiency of its activities. Any functional spheres of activity (financial, production, managerial and organizational-legal) may be subject to restructuring. Enterprises choose the type of

restructuring they need. Several types can be used at the same time. Under conditions of crisis, companies often carry out financial restructuring.

Financial restructuring usually refers to outstanding liabilities. In the process of restructuring, obligations are distributed over a longer period with smaller payments. This type of restructuring allows the enterprise to ensure its viability and increase liquidity. Also, financial restructuring involves changing the method of attracting investments, managing assets and liabilities.

Recently, in the West, restructuring of enterprises and implementation of anti-crisis management is taking place in the direction of business process reengineering (BPR). This concept arose in 1990 and arouses the active interest of specialists in the field of management and information technologies. Annual BPR conferences have been held in the USA since 1994. More than ten monographs and hundreds of articles describing BPR have been published. The work of M. Hammer and J. Champa [20] is recognized as the most popular.

Reengineering involves radical changes in the enterprise, which will significantly improve financial results [21]. In general, reengineering consists in restructuring business processes by changing production technology, changing the organizational structure, mastering innovations, etc. The peculiarity of reengineering is that it allows to achieve a sharp increase in the performance of the enterprise.

Reengineering is similar to the innovative development of the enterprise, because it performs similar tasks. But reengineering is a more drastic and radical transformation of the enterprise. It is most suitable for enterprises that are on the verge of bankruptcy and need - rapid transformations and changes in activity. Reengineering can transform the main business processes in a limited period of time, it is also used by enterprises when new competitors appear, business conditions change or consumer needs change, etc.

The rehabilitation of the enterprise can be carried out independently by the enterprise and by decision of the commercial court. One of the goals of rehabilitation is to fully satisfy the demands of creditors. Sanitation is distinguished from other instruments by a wide range of measures that can be implemented (organizational-legal, production-technical, social and financial-economic). Sanitation can take place by merging an enterprise (which is on the verge of bankruptcy) with a more powerful company; or by issuing new shares (bonds) to mobilize cash capital; full or partial state purchase of shares of an enterprise on the verge of bankruptcy; providing government subsidies; by converting short-term debt into early debt.

The process of anti-crisis management of the enterprise requires the adoption of complex management decisions to improve the efficiency of the enterprise and bring it out of the crisis state. This is what makes it necessary to use information technologies that can increase the intellectual level of decisions made, the adequacy and timeliness of management decisions, and the speed of implementation of selected management decisions.

Studies show that the use of information technologies in anti-crisis management has certain features that become highly relevant in the context of an enterprise crisis. The integrated automated system of anti-crisis management of the enterprise is built on the basis of a multi-component scheme of the organization of activities. It includes the following types of automated information systems (AIS):

- AIS of production and logistics management;
- AIS of financial management and accounting;
- AIS of marketing and investment management;
- General control AIS;

– AIS personnel management [14].

At the same time, each of the specified information systems is, on the one hand, independent and includes all stages of anti-crisis management - interactive, active, and reactive, and on the other hand, it is well integrated into a single automated information system of enterprise anti-crisis management (AISEAM).

Each of the components of AISEAM can be implemented and function independently (except for General control AIS) from others, as well as in various combinations.

The use of a flexible configuration system made it possible to adapt the software to almost any conditions and requirements for the implementation of the production cycle and management decision-making. In addition, when using a multi-component organization scheme of an enterprise's information system, the reliability and longevity of the latter is significantly increased, and the most complete performance of the necessary functions is ensured.

Therefore, a modern information system needs a structure of software modules that are organically connected to each other, and at the same time able to work independently of each other. Such a multi-component system ensures compliance with the main principle of AIS construction - the absence of duplication of input of source data. At the same time, the information received as a result of input or processing by one of the modules of the information system can be used by any of its other components.

Thus, the modularity of the construction of modern information systems makes it possible to flexibly vary the configuration of these systems, as well as to carry out their phased introduction into operation. Thus, it reduces the risk of the enterprise entering a crisis situation.

Today, the main tools of anti-crisis financial management are the following: rehabilitation, controlling, restructuring, reorganization, bankruptcy, financial diagnosis, innovative development, diversification, reengineering and benchmarking. All of these tools are quite effective and have the ability to bring the company out of crisis, restore its solvency and liquidity. The choice of one or another tool depends on the state of the enterprise, the depth of the crisis that hit it, etc.

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ACCOUNTING AND ANALYTICAL ENSURING THE ECONOMIC SECURITY OF THE CONSTRUCTION INDUSTRY

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As a result of the war with the Russian Federation, the economy of Ukraine underwent significant structural changes that negatively affected the economic security of its industries, in particular the construction industry. Capital outflow; decrease in the number of economically active population involved in work in the industry due to their departure abroad or mobilization; interruptions in the supply of construction materials, both domestic and imported; growth of transport risks; damage to logistics routes and connections due to a sea blockade, stoppage of railway traffic in the territory of hostilities, suspension of air traffic, destruction of highways; damage to equipment, construction objects; critical infrastructure destruction; lack of material resources; increasing economic uncertainty; the impossibility of conducting business in the regions of hostilities and in the territories adjacent to them; decrease in demand; reducing the scope of activities; losses due to termination or suspension of activity - this is far from a complete list of problems, the solution of which depends today on the economic security of not only the construction industry, but also the state as a whole. After all, it is the construction industry that ensures the reconstruction of the country, solves the problem of employment of the population; fills the revenue part of local budgets; stimulates the expansion of other industries: metallurgy, mechanical engineering, woodworking, petrochemical industry, energy, transport, etc.; performs a social function, in particular providing housing.

The economic security of the construction industry is a guarantee of its effective activity in the conditions of existing risks and threats. An important role in this is played by the accounting and analytical provision of economic security, which creates an information system necessary for making balanced management decisions. This determines the relevance of research devoted to the study of its components and the search for ways to improve them.

Scientific works by N. Akimova, T. Bezrodnaya, M. Benko, N. Bondarchuk, S. Brik, L. Hnylytsk, T. Hrinka, T. Yevlash, T. Kaminskaia, I. Kovova, O. Toporkova, N. Mardus, O. Falchenko, A. Stangret etc.

Despite the numerous studies of scientists, the issue of the formation of accounting and analytical support for the economic security of the construction industry in modern conditions requires further study.

The purpose of the study is to characterize the components of the accounting and analytical provision of economic security in the construction industry and to find ways to improve them in modern conditions.

The economic security of the industry is its ability to effectively and continuously carry out its activities with the help of a complex of interrelated accounting and analytical and control procedures, which allow optimizing the use of resources and ensuring protection against the influence of internal and external threats to the economic interests of all interested parties.

To ensure it, it is necessary to have reliable and objective information about property, financial condition, performance results, and external environment. The system of accounting and analytical support for the economic security of the enterprise allows you to find out just such information. Its content is determined by a number of factors, including the branch specifics of the enterprise's activity, the organizational and legal form of functioning, the scope and degree of diversification of financial and economic activity, and other factors.

The system of accounting and analytical support for economic security is a part of the enterprise management information system designed to meet the needs of economic security. It is a complex, dynamic system, which is characterized by a significant number of multifaceted internal connections between its individual components and resistance to the influence of external factors.

Elements of the system of accounting and analytical support of the economic security of the construction enterprise - accounting and analysis of its activity. Their interaction allows for the formation of a powerful information base for decision-making, control and execution:

- diagnosis of the financial and property condition of the enterprise in order to prevent its insolvency;

- assessment of the state and level of economic security of the enterprise, its potential partners, competitors;

- preparation of information for making management decisions about cooperation with partners in the conditions of identified threats and dangers;

- identification of risks and associated potential threats;

- minimization of risks associated with unreliable accounting information;

- Ensuring the protection of information that constitutes a commercial secret of the enterprise.

- The objects of accounting and analytical support for the economic security of enterprises in the construction industry are:

- primary accounting information, formed on the basis of primary accounting documents, which confirm the fact of economic transactions;.

- current accounting information, which is created as a result of accounting processing of primary accounting documents and contains the results of generalization and grouping of their data;

- Effective accounting information, which is determined based on financial, statistical, tax reporting data;

- Effective economic information obtained on the basis of the analysis of effective accounting information.

Accounting and analytical support is a continuous, purposeful formation of relevant information flows subject to the requirements of analysis, planning and preparation and control of management decisions.

It is represented by a complex system that meets the goals of management and combines accounting-analytical, financial-analytical, social-analytical, ecological-analytical components [1].

The interconnection of these components allows for monitoring, registration, summarization, processing, control and analysis of economic, social and environmental information necessary for management needs, and ensures the following functions:

- Information - provision of accounting and analytical information for operational-technical and statistical accounting, planning, forecasting and management;

- accounting - use of forms and methods of accounting indicators of economic, technical, social, environmental and other activities;

- Analytical - provision of accounting and analytical information for the analysis of the financial and economic activity of the enterprise, identification of reserves;

- Organizational - development and optimization of the organizational structure and set of regulatory documents on the organization of accounting, control and analysis, reporting;

- Control - control over the progress of the enterprise [2].

The accounting and analytical component is basic in the system of accounting and analytical provision of economic security, as it provides the analysis of the enterprise's activity, formation, accumulation, classification and generalization of the necessary information.

The accounting and analytical component is based on operational and effective accounting data and uses statistical, production, reference and other types of information for economic analysis. It involves the collection, processing, and generalization of all types of information used to make managerial decisions at the macro- and micro-levels.

The accounting and analytical component is determined, first of all, by the accounting policy of the enterprise as a set of principles, methods and procedures used by it to compile and submit financial statements. Accounting policy is the company's choice of specific methods, forms and techniques of accounting, based on the provisions of current regulatory documents and the specifics of the company's activities.

The efficiency of the company's business management and its long-term development strategy largely depend on a skilfully formed accounting policy. After all, the accounting policy determines the ideology of the enterprise's economy for a long period, contributes to the strengthening of accounting and analytical functions in the management of the enterprise, allows to quickly respond to changes occurring in the production process, to effectively adapt the production system to the conditions of the external environment.

When forming the accounting policy of a construction enterprise, it is necessary to comply with the norms of the current legislation, the requirements of P(S)BO, other regulatory documents on the regulation of accounting and take into account the peculiarities of the enterprise's activities (organizational, technological, the number and qualifications of accounting employees, the level of technical equipment of accounting), own interests different groups of users regarding account information [4].

The choice of accounting policy depends on various factors and is purely individual for each business entity. For the activity of a construction enterprise, specific factors affecting the choice of accounting policy are: high material intensity, capital intensity of production; constant movement of goods and material values; long duration of the production cycle, unpredictability of its completion; a large volume of documentation on the organization of production (permitting documents, agreements with investors and suppliers, invoices, acts of completed works, contracts with contractors and subcontractors); the individual character of the finished product, its scale and complexity; real estate and territorial separation of construction objects, which involves the movement of means of labor and labor force; the need for object-by-object cost accounting; significant allocable indirect costs; performance of work by teams; the special nature of the customer's and contractor's calculations for the performance of works; a step-by-step procedure for forming the contractual price for construction and installation works.

The accounting policy of a construction enterprise should include the following sections:

- Terms;
- Organization of the work of the accounting service;
- accounting policy for financial accounting;
- Management accounting policy;
- accounting policy regarding taxation.

The effectiveness of the accounting policy is determined by how clearly the content of these sections and their individual elements correspond to the goals and specifics of the enterprise's activities, that is, the above-mentioned factors are taken into account, because the quality of accounting information necessary for making management decisions depends on this. The influence of the specifics of construction industry enterprises on the choice of elements of accounting organization and accounting policy is shown in Table 1.

Table 1

The influence of the characteristics of construction industry enterprises on the choice of accounting policy elements

Factors affecting the choice of accounting policy of a construction enterprise	Elements of the accounting organization and accounting policy of the construction enterprise, which are affected by the factor	Impact content
1	2	3
Material capacity of production	Documentation of accounts, inventory write-off methods, accounting of material costs, order and terms of inventory	The need to establish warehouse management, including at the construction site, and to ensure control over the stocking and consumption of materials, the application of the normative method of writing off materials at cost, the application of additional reports on the use of materials for the construction of objects, the inventory of materials is carried out both in warehouses and on construction sites where they are stored
Capital intensity of production	Accounting for capital investments	Capital investment can come throughout the entire production cycle
Constant movement of goods and material values	Material movement accounting, stock accounting system	Variety of nomenclature of materials; the application of various material accounting systems depending on the conditions of their storage and use
Durability of the production cycle	Accounting for production costs, formation of cost, accounting of income and financial results, methods of determining the degree of completion of works under construction contracts	The inventory value of the object is determined throughout the entire construction period; calculations are made for conditionally finished products; income and financial results are formed both after the end of construction and upon partial completion of the construction object.
The unpredictability of the completion of the production cycle		Due to the influence of climatic conditions on certain technological processes, the duration of the production cycle may increase, which requires additional costs
A large volume of documentation on the organization of production	Form of accounting, structure of accounting service, technique of processing accounts	To ensure the quality and efficiency of accounting, construction enterprises must use accounting automation elements or automated accounting forms
Individual nature of finished products	Accounting of income and expenses is carried out according to construction contracts	Formation of the cost price and determination of the cost of products is carried out for each individual object using object-by-object cost accounting, the non-contract method of formation of the cost price
Scale of finished products	Organization of accounting of finished products	Calculation of the cost of construction products in the form of estimates
Complexity of finished products	Accounting for production costs, cost formation	

1	2	3
Real estate and territorial separation of construction objects	Accounting of income and expenses is organized by objects of construction production	The need for phased accounting of the volumes of completed works and their acceptance by the customer, the use of cost and income accounting methods, based on the degree of completion of the works
Territorial consolidation of construction products	Accounting and control of production sites	Buildings and structures are created on a certain plot of land and remain stationary throughout the construction period; availability of costs: for rebasing of construction machines and mechanisms; for the relocation of construction units
Substantial allocable indirect costs	Accounting for indirect costs	The need to determine the list of costs to be distributed, establish their relationship with the distribution base, select the distribution base, determine the level of costs and the distribution base at normal capacity, carry out the distribution of costs for inclusion in the cost structure
Execution of works by teams	Accounting for labor and its payment, accounting for the amount of work performed	The use of mainly collective forms of remuneration; availability of special forms of bonuses (bonuses for early commissioning of facilities)
The special nature of the customer's and contractor's calculations for the performance of works	Forms of calculations, formation, income, expenses and financial results, methods of determining the degree of completion of works under construction contracts	Formation of targeted provision and targeted receipts of funds, application of the letter of credit form of payments
The step-by-step procedure for the formation of the contractual price for the execution of construction and installation works	Accounting of income and financial results, the procedure for recognizing administrative costs under a construction contract	The need for phased accounting of the volumes of completed works and their acceptance by the customer, accounting of income, based on the degree of completion of the works
Significant influence of natural factors on the technological process	Cost accounting	The need for additional costs to ensure compliance with technological conditions, safe working conditions, preservation of production stocks at construction sites, etc.
Construction products are accounted for at estimated cost and actual cost	Organization of accounting process	Involvement of not only accounting service specialists, but also specialists of the production and technical department in the calculation of completed construction works.

Developed by the author

In modern conditions, the quality and reliability of accounting information also depends on the degree of application of information technologies for data processing and storage, since their use allows organizing not only remote access to it, but also its receipt. Therefore, first of all, the improvement of accounting and analytical support should include an increase in the range of application of such technologies at the enterprise.

Unfortunately, to this day, a formal approach to the formation of accounting policy by enterprises is quite often observed. Such a situation is influenced by the lack of sufficient practical management experience in market conditions and understanding of the importance of this issue, as well as insufficient legislative regulation of it.

Among the shortcomings of the formation of the accounting policy of construction enterprises, the following can be distinguished:

- orders on the accounting policy of most construction enterprises do not have a clear structure. The accounting issues of individual objects are not given in full or are not covered at all;
- individual enterprises draw up the order on the accounting policy formally, the elements of the order are not substantiated and duplicate individual points of regulatory documents;
- the majority of construction enterprises defined their accounting policy at the beginning of the accounting reform, that is, simultaneously with the entry into force of the Law of Ukraine "On Accounting and Financial Reporting in Ukraine" and after that the vast majority did not change it, despite the approval of new P(S) BO, making changes and additions to individual P(S)BO, changes in tax legislation norms affecting accounting policy, etc.;
- the accounting policy regarding the organization of accounting is not always determined in the orders on the accounting policy, namely: the working plan of accounts, the document flow schedule, the list of accounting registers used at the enterprise, etc. are not specified;
- the content of the sections of the accounting policy relating to the organization of management accounting at the enterprise is of a purely formal nature, for the most part, management accounting at construction enterprises is not properly carried out.

The existence of most problems in the formation of the enterprise's accounting policy is explained by the limitations of the regulatory framework. The legislation that defines the accounting principles, methods, techniques that are part of the accounting policy is imperfect and does not allow solving a large number of issues. There are no recommendations in the current regulatory framework regarding the choice of one or another method of accounting policy and its impact on the company's performance. Therefore, choosing one or another method to ensure rational accounting, the enterprise must first independently develop a plan for certain consequences of the application of various methods, but, unfortunately, not all enterprises perform this stage.

The accounting policy of a construction enterprise should be formed in stages, performing the following tasks at each stage:

- Determination of tasks for the use of accounting objects, for which an accounting policy will be developed;
- Careful research and assessment of factors that will influence the choice of principles, methods of accounting and financial reporting;
- Identification of these principles and methods with the company's operating conditions and requests from users of reporting information;
- Registration of the accounting policy in accordance with the established requirements;
- Systematic review and improvement of the accounting policy. Changes in the external environment, conditions of economic activity, and the development of relationships with other management systems make it necessary to bring it into line with changing legislation and business processes.

Formation of an accounting policy according to this algorithm will ensure its proper quality according to such criteria as economic feasibility, impartiality, compliance with the legal framework, completeness, rationality of accounting methods, compliance with company goals and accounting automation.

Formation of the accounting policy requires organizational, technical, and personnel capabilities from the construction enterprise and does not end after the approval of the Order on the accounting policy, but continues until the termination of the enterprise's activities. Owners of construction companies do not always pay due attention to the formation of accounting policies, which negatively affects the accounting process and determination of financial results. They need to effectively organize accounting and analytical work at the enterprise, as this will allow the formation of a high-quality information base necessary for making both current and strategic decisions.

The financial and analytical component of accounting and analytical support for the economic security of the enterprise is aimed at achieving the most effective use of its resources (capital, personnel, rights, information, technology and equipment), reflects the purpose and results of economic activity, provides analysis of threats to its financial stability, liquidity, solvency, implementation of measures to maintain the financial condition of the enterprise at the appropriate level, ensuring turnover of assets, profitability. This component is also manifested in the maximization of the volume of product sales by optimizing the range, rhythm and efficiency of product sales.

As a result of the war with the Russian Federation, the financial condition of most subjects of the construction industry significantly worsened, which was reflected in their economic security. The construction industry suffered losses due to the destruction of objects under construction; as a result of stopping investment projects due to extremely high investment risks; in connection with the reduction of demand among the population.

The volume of activity of the construction industry decreased significantly. For example, in January–September 2022 in Ukraine, developers put into operation almost half the area of residential buildings and 3.5 times less non-residential buildings than in the corresponding period of 2021, moreover, this indicator has negative dynamics every quarter (table 2). Ivano-Frankivsk region - in terms of non-residential buildings (growth rate - 114.31%) and Poltava region - in terms of residential buildings (growth rate - 134.76%) managed to increase the total area put into operation compared to the indicator of 2021.

The demand for real estate decreased, and the average cost of housing in almost all regions of Ukraine increased by almost 1.5 times compared to the corresponding period last year (table 3). The cost of construction increased by 20% due to a significant increase in the price of building materials, logistics, inflation and the rise of the exchange rate, the destruction of internal agreements, problems with materials and structural elements, in particular metal and glass.

Table 2

Dynamics of the total area of buildings put into operation in Ukraine

Period	Total area of buildings put into operation					
	residential			non-residential		
	2021, m2	2022, m2	Growth rate, %	2021, m2	2022, m2	Growth rate, %
January-March	2306431	1276285	55,34	864102	491594	56,89
January-June	4797229	2420191	50,45	2349380	1061353	45,18
January-September	8752939	4825286	55,13	3799719	1061353	27,93

Developed by the author based on data [4, 5].

Table 3

Dynamics of the average price of 1 m2 in new buildings by regions of Ukraine for 2021-2022

City	September 2021	September 2022	City	September 2021	September 2022
Lviv	19800	35600	Kropyvnytskyi	14500	25700
Odesa	21300	34700	Mykolayiv	16600	34100
Poltava	18500	29200	Rivne	16400	28500
Zhytomyr	16000	25000	Sumy	15300	20000
Uzhhorod	21600	39800	Ternopil	16000	22300
Vinnytsia	20900	33900	Kharkiv	23300	20200
Dnipro	25000	40900	Kherson	17000	0
Kyiv	33000	49100	Khmelnyskyi	14500	19400
Lutsk	17500	24000	Cherkasy	16500	21500
Zaporizhzhia	18200	23700	Chernivtsi	18700	32700
Ivano-Frankivsk	13300	22100	Chernihiv	15100	25000

Developed by the author based on data [6].

The primary real estate market has practically stopped because the population has limited financial resources and lacks financial confidence, there is a reduction in sales, rising prices from developers, the state cannot provide affordable mortgages due to the continuation of martial law and the difficult state of the economy, foreign partners are not yet active in connection with the economic uncertainty of the situation. The increase of the discount rate to 25% actually made business financing impossible, investments in new projects are almost non-existent. There are currently no financing mechanisms for reconstruction projects by foreign countries and investors. Currently, a significant share of the construction business is projects for repair, dismantling, and construction of temporary structures.

Despite this, the construction business continues to grow. As of September 2022, the average recovery of construction of new buildings in the regions of Ukraine was 57.4% compared to its volume in February 2022. The leader in the restoration of construction was the Volyn region - 96% (table 4). This situation was influenced by the internal migration of forced migrants to the western regions and the remoteness from the war zones.

Table 4

Resumption of construction in new buildings by regions of Ukraine as of September 2022 compared to February 2022

Region	Construction recovery, %	Region	Construction recovery, %	Region	Construction recovery, %
Ukraine	57,4	Kirovohradsk	67	Sumy	44
Vinnytsia	88	m. Kyiv	46	Ternopilsk	92
Volynsk	96	Kyivska	55	Kharkivska	8
Dnipropetrovsk	63	Luhansk	0	Khersonsk	0
Donetsk	0	Lviv	86	Khmelnyska	82
Zhytomyr	59	Mykolayivska	0	Cherkassy	92
Zakarpattia	92	Odesa	67	Chernivtsi	63
Zaporizhzhia	37	Poltava	79	Chernihivska	37
Ivano-Frankivsk	92	Rivne	92		

Developed by the author based on data [7].

However, the extent of the destructive actions that the war caused and continues to cause to the financial security of the construction industry is quite significant. They affect investments, the market, the level of GDP growth, etc. In order to overcome this destructive influence, targeted efforts are needed to form funds for the recovery of the economy of Ukraine, equalize the critical factors of national security in all components, ensure political stability, and state regulation in the financial sphere.

With the introduction of martial law, the Government of Ukraine introduced changes to separate legal acts with the aim of stimulating activity and strengthening the economic security of construction industry entities.

Firstly, the procedure for carrying out economic activity has been changed - it is possible to carry it out without the need to obtain documents of a permissive nature, licenses, etc., provided that a declaration containing information about the business entity and the type of activity it plans to carry out is submitted [8]. However, this legal norm does not apply to business entities that perform preparatory work defined by construction regulations; construction works on construction sites, which according to the class of consequences (responsibility) belong to objects with minor consequences (CC1); commissioning of such facilities; execution of preparatory and construction works on construction sites, which according to the class of consequences (responsibility) belong to objects with medium (CC2) and significant (CC3) consequences and acceptance of such objects into operation.

Secondly, the tax rules are simplified:

- Changes were introduced to the application of the simplified taxation system, which increased the number of small business entities - legal entities that are payers of the single tax of the 3rd group [9];
- Environmental tax, land fee, real estate tax are temporarily not paid [9];
- differentiated rates of excise duty, rent for natural gas extraction and other changes that affect economic activity and local budget revenues [10].

Thirdly, the procedure for importing construction products has been simplified, customs payments have been minimized, which will allow importing all the necessary materials faster and cheaper, and building objects even more quickly.

Fourthly, there were changes in the special legislation regulating construction activities. Yes, permitting and registration procedures in construction have been simplified [11]. The following changes are foreseen for the duration of martial law and within one year from the date of its termination or cancellation:

- in the case of developing and uploading to the Unified State Electronic System in the field of construction by a certified architect or design engineer a scheme of land development intentions, the construction of individual residential, garden, country houses, as well as other buildings and structures not higher than 2 floors can take place without a construction passport in accordance with urban planning documentation at the local level or the purpose of the land plot;
- the provision by the authorized body of town planning conditions and restrictions on the development of the land plot or the adoption of a decision on refusal must take place within 10 working days from the date of registration of the application. Otherwise, the design of the construction object is carried out without obtaining town planning conditions and restrictions, in accordance with town planning documentation at the local level and land use restrictions;
- project documentation is submitted by the customer for approval to the cultural heritage protection authority through the Unified State Electronic System in the field of construction, which must review it and provide an answer regarding approval or justified refusal within 30 days. If no

response is given within 30 days, the approval of the project documentation is considered to be approved by default;

- conducting a control geodetic survey before putting into operation the completed object is not carried out during the restoration, capital repair of a house, building, structure, which after the object is put into operation are independent objects of immovable property;

- The possibility of postponement of the deadlines for the execution of certain types of work on the decoration of facades and the improvement of the territory, with the exception of transport passages and pedestrian communications;

- the main spatial and socio-economic priorities and a set of priority measures to ensure the restoration of settlements (territories) that suffered as a result of hostilities, acts of terrorism, sabotage, emergency situations, and are also places of concentration of socio-economic, infrastructural, environmental and other crisis phenomena within the framework of the "Comprehensive Rehabilitation Program of the settlement (territory)";

- normative procedures regarding the construction and reconstruction of facilities for temporary residence of persons who lost their housing due to emergency situations, internally displaced persons were approved; placement of production capacities of enterprises displaced (evacuated) as a result of the armed aggression of the Russian Federation;

- The procedure for surveying real estate objects that were damaged as a result of the war was established;

- it is allowed to establish and change the purpose of land plots of state and communal property during martial law, except for nature conservation and landscape and recreational areas, land of historical and cultural purpose, water fund (except for the placement of river ports / terminals).

Changes in legislation are aimed at creating legal grounds for simplification, acceleration, and improvement of activities in the construction sector. Their implementation will make it possible to accelerate stabilization trends in the construction complex and contribute to its financial stability.

The social-analytical component of the accounting-analytical provision of economic security involves the study of internal (changes in its price policy; the level of expenses for ensuring the social needs of employees, compliance with production discipline and working conditions; the appearance of negatively-minded informal leaders in the team; compliance of the company's employees with qualification requirements; establishing the facts violation of the requirements for working with information that is a commercial secret; elucidation of manifestations of unreliability and disloyalty in the team) and the external environment (social tension in the country or region; standard of living of the population; migration of the working population; deterioration of social norms) of the construction enterprise.

In the conditions of a state of war, its importance in the system of accounting and analytical support increases, since the war not only exacerbates all existing social problems in the country, but also creates new ones.

As a result of the war, the internal environment of construction enterprises changed: the psychological state of workers, working conditions worsened; part of the able-bodied population went abroad, to other regions, was mobilized, instead there were transfers of positions, the recruitment of new specialists, which affected the microclimate in the team, the distribution of responsibilities, the workload of employees, etc. At the same time, in the external environment in which enterprises are located, there is also an aggravation of social tension.

In this regard, the socio-analytic component of accounting and analytical support acquires a special meaning for strengthening the economic security of the enterprise. This requires enterprises to take measures to study the microclimate in the team, strengthen healthy relationships, improve the psychological state of employees, and have a balanced social policy.

The ecological-analytical component of the accounting-analytical provision of the economic security of the construction industry consists in monitoring compliance with environmental standards, minimizing losses from environmental pollution, using advanced resource-saving technologies, ecological materials, etc. in production.

In order to ensure it, business entities must comply with the norms of the minimum permissible content of harmful substances entering the environment, ecological parameters of manufactured products.

Buildings and constructions are one of the main sources of environmental pollution. According to experts, buildings around the world consume about 40% of all primary energy, 67% of all electricity, 40% of all raw materials and 14% of all drinking water supplies, and also produce 35% of all carbon dioxide emissions and almost half of all solid household waste.

The construction and operation of any structures always causes one or another deviation from the state of natural ecological balance. The degree of influence depends on the type of materials used, on the construction technology of the object, technological equipment of construction production, type and quality of machines, mechanisms, vehicles, types and power of engines, organization of technological processes.

Thus, in the process of construction and installation works, atmospheric air is polluted due to:

- exhaust gases of motor vehicles, construction machinery;
- spraying of limestone, cement, paint aerosols, etc.;
- incineration of waste, remnants of construction materials.

Construction pollutes surface waters when wastewater from construction sites enters them.

During construction activities, construction waste, cement, lime, paints, oil products, heavy metals and other toxic substances pollute the soil. During the development of construction sites, the fertile soil layer and plant cover are destroyed, the root-caused destruction of biogeocenoses occurs. Agricultural lands are permanently disturbed after their alienation for construction. According to the UN, 300,000 hectares of arable land are lost annually in the world just for the construction of cities and transport routes.

Construction causes aerodynamic disturbances, temperature effects, etc. After the construction of tall buildings and structures, the aerodynamic characteristics of the construction site change: eddy-like atmospheric flows appear, which in some cases can damage glass structures, building walls, etc.

The construction industry is a powerful consumer of natural resources, which leads to their depletion, since the production of building materials and products is the most material-intensive type of activity and is measured in billions of tons. Hundreds of millions of tons of cement, crushed stone, sand and other natural resources are consumed annually in the world just for the production of concrete (more than 1 billion m³ of it is produced annually). It is estimated that, in economically developed countries, up to 50% of the total volume of extracted natural resources is spent on the needs of the construction industry.

As a result of the armed aggression of the Russian Federation, about 25% of the territory of Ukraine was affected, some cities and towns were completely destroyed (as of September 1, 2022, according to data [12, 13], 74.1 million m² of objects were destroyed/damaged, which is 7, 3% of the total area of the housing stock of Ukraine, of which 115.6 thousand apartment buildings, 119.9 thousand private houses, 0.2 thousand dormitories).

Therefore, after the end of the war, intensive reconstruction of the country will begin, the volume of construction activity and, accordingly, its impact on the environment will increase. To ensure the environmental safety of the country, the construction industry during the reconstruction period must act in accordance with the principles of European development [14, 15], namely:

- decarbonization of buildings and life support systems due to a significant increase in their energy efficiency and an increase in the share of renewable energy sources in communities;
- creation of a favourable environment for equal access to opportunities for all citizens, increased involvement in solving development problems of all segments of the population, as well as fair distribution of material and social benefits of the share of renewable energy sources in communities;
- restoration and development of settlements based on the best international practices with the use of modern solutions and technologies;
- creation of a space aimed at ensuring safety for the maximum number of the population and sustainable functioning of economic entities in emergency situations;
- efficient use of energy, water and other resources;
- attention to maintaining the health of residents;
- reducing the amount of waste, emissions and other impacts on the environment.
- increasing green areas in complexes and individual houses, using recycled and environmentally friendly materials, designing green roofs and facades, using technologies with alternative energy sources and saving resources.

It is the ecological-analytical component of the accounting-analytical provision of economic security that should ensure control over the observance of these principles by the subjects of the construction industry.

The impact of martial law on the system of economic security of the construction industry is significant.

Firstly, as a result of the departure of Ukrainians abroad, the relocation of citizens to Western Ukraine, the stay of a part of the population in the cities where hostilities are taking place, the number of economically active population involved in construction activities has sharply decreased, which could not but affect its results.

Secondly, stopping railway traffic in the territory of hostilities; damage and overloading of roads have a negative impact on the supply of construction companies with materials, structural elements, tools, etc. Due to this, there are downtimes, work deadlines are not being met, and the duration of construction is increasing.

Thirdly, due to lack of human and material resources; decrease in the demand for construction products in the regions of hostilities and the territories adjacent to them due to the outflow of the population, a high risk of destruction of buildings; the physical impossibility of carrying out construction works due to hostilities, the capacity of construction enterprises decreased.

Fourthly, the war caused considerable losses to construction enterprises, due to the suspension and slowdown of activity.

Fifth, specific types of threats specific to the construction industry have increased, namely:

- intensifying competition in the limited market of orders and geographical space;
- Corruption and internal fraud;
- causing damage to the construction object, equipment, damage to goods and material values as a result of hostilities, rocket attacks, shelling;
- Damage to personnel as a result of hostilities, missile strikes, shelling;
- Increase in cases of industrial injuries as a result of deterioration of the psychological state of personnel due to military events;
- the threat of a shortage, including a hidden one, due to insufficient qualification of employees, lack of necessary equipment, difficult working conditions, etc.;
- Decrease in the quality of performed works;
- Growth of transport risks.

To overcome them and ensure the economic security of enterprises of the construction complex, it is necessary to: continue the reform process in the industry, in particular, improvement of standardization and rationing of construction products; implement waste-free and low-waste production (in particular, construction materials), advanced technologies and materials in construction taking into account world experience, including modern software products and methods for creating accounting and analytical support, etc.

Effective accounting and analytical support of the industry's activities will be facilitated by:

- Further development of e-construction work and digitization of the system. The single state electronic system in the field of construction was implemented in 2020. It is a system and database, the purpose of which is to provide construction customers with administrative online services for submitting, making changes, changing data, registering, issuing, canceling and annulling documents that give the right not to perform preparatory and construction works and documents certifying acceptance into operation of facilities completed by construction. The system consists of: register of construction activities; electronic cabinet; portal of the Electronic system. The work of e-construction is the basis of corruption-free work in construction, digitalization of services and digitalization of all information.

- Active use of 3D visualization of future projects in the environment,
- Automated measurement of buildings,
- Use of robotics,
- Acceptance into operation of certain categories of objects on the basis of photo fixation carried out by the customer, which will speed up this procedure;
- Expansion of the list of objects of capital repair, on which construction work can be carried out without the development of project documentation (according to the defective act);
- prompt updating of building regulations;
- Introduction of BIM technologies (building information modelling technologies).
- Introduction of construction information modelling technologies (BIM technologies) to improve the quality of construction. For this purpose, it is necessary to create regulatory and technical regulation, conduct training of subjects of architectural activity (construction clients, responsible executors of works related to the creation of architectural objects, owners (managers) of objects) and implement pilot projects in part of the design and construction of objects of various purposes.

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THE CHOICE OF THE METHOD OF INVENTORY DISPOSAL ASSESSMENT AND ITS IMPACT ON THE FINANCIAL PERFORMANCE OF THE ENTITY

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Agricultural, industrial, transport and service enterprises use a wide variety of inputs in their activities [19]. In turn, the cost of purchased raw materials, materials, components, etc. is influenced by inflation in the country, trends in world prices, competition of suppliers in the market, the size of transport tariffs, the volume of purchases of materials, etc. At the same time, the above has a direct impact on the formation of the cost of production produced by the enterprise, the determination of the break-even point and the financial result of the business entity, which determines the relevance of the selected study [19].

Among the main methods for evaluating production inventories when writing them off to production costs, which are defined by Regulations (standard) of accounting 9 "Inventories" [4], are the following methods

- identified cost of the corresponding unit of inventories;
- weighted average cost;
- cost of first in time of receipt of inventories (FIFO);
- LIFO (since 2005 it was banned in Ukraine);
- standard costs;
- selling price.

Also, Regulations (standard) of accounting 9 "Inventories" [4] stipulates that for all units of inventories that have the same purpose and the same conditions of use, only one of the above methods is used.

Along with this, in order to provide the management with the necessary information in decision-making, in the system of management (internal economic) accounting, which has no official regulation, the company can use the abolished method of LIFO (cost of the last in time of receipt of inventories), and, depending on information needs, simultaneously use all these methods of writing off production inventories. This makes it possible to evaluate the category of production cost from different points of view, which has an undoubtedly positive impact when making decisions on pricing for manufactured products and assessing the financial performance of the entity [16].

Accounting and analysis of production inventories were studied by such scientists as L. M. Ocheretko [8], M. V. Paltseva [8], N. B. Melnyk [13], L. V. Burdeina [14], M. O. Yunatsky [12], T. A. Burova [7] and others. Despite the significant achievements of these scientists, some issues of organization and methodology of accounting and analysis of production inventories, taking into account domestic and foreign experience and the choice of method for assessing the write-off of production inventories require further research.

The purpose of the study is: to determine the features of methods for assessing the write-off of inventory, their advantages and disadvantages.

The information base of the study was the legislative and regulatory acts of Ukraine, international accounting standards for inventory accounting, works of domestic scientists on accounting and analysis of inventory, Internet resources.

According to Regulations (standard) of accounting 9 [4], inventories are assets that:

- held for subsequent sale in the ordinary course of business;
- are in the process of production for the purpose of further sale of the production product;
- held for consumption in the production of goods, performance of works and provision of services, as well as management of the enterprise.

According to paragraph 16 of Regulations (standard) of accounting 9 "Inventories" [4], inventory valuation at their release for production, sale or write-off is carried out by one of the following methods

- identified cost;
- weighted average cost;
- FIFO;
- standard costs;
- selling price.

METHOD 1. Measurement at identified cost. At the same time, only one of the above methods is used for all inventory accounting units that have the same purpose and the same conditions of use [6].

In other words, "for what price I bought, for what price I wrote off" (into production, to the finished goods warehouse or for sale - depending on what types of inventories and for what purpose they are disposed of). The method of identified cost is the most accurate in terms of financial results, but requires significant warehouses for separate storage of each batch of stocks, requires the organization of natural cost accounting of stocks in the context of their names [10].

According to Regulations (standard) of accounting 9 [4], this method is used to assess the disposal of inventories purchased for the purpose of their sale on a special order, and to assess the disposal of inventories that do not replace each other. For example, cars, computer equipment, furniture, household appliances, jewelry, etc. However, it is not entirely clear why such a restriction in the application of the identified cost method was introduced in Regulations (standard) of accounting 9 [4]. Perhaps, the emphasis on special orders and irreplaceability should not be understood as a limitation, but only in the sense that all enterprises will be able to apply this valuation method for special orders, and in the case of irreplaceability - mandatory [10].

Most likely, this is how clause 17 together with the first paragraph of clause 16 of Regulations (standard) of accounting 9 [4] should be understood. After all, many enterprises have long established computer accounting of receipt and disposal of inventories at the identified cost, and since this method is the most accurate, it makes no sense to change and rebuild programs for the sake of introducing approximate accounting, which is the accounting of disposal at: weighted average cost, FIFO, LIFO. Another thing is that we did not know the term identified cost. But this is only a new term, and the method itself is not new - it has long been widely used in our country.

In our country, it has always prevailed and was used in almost all sectors of the economy. A prerequisite for this is the ability to establish its price (historical cost) for each unit of stocks [10].

METHOD 2. Valuation at weighted average cost. The method is applied separately for each set of inventories taken into account, identical in purpose and consumer characteristics [16].

As for the procedure for applying the weighted average cost method, this method provides for the evaluation of inventory disposal in two ways:

1) assessment at the monthly weighted average cost is carried out for each unit of inventories by dividing the total value of the balance of such inventories at the beginning of the reporting

month and the value of inventories received in the reporting month by the total number of inventories at the beginning of the reporting month and inventories received in the reporting month.

2) valuation at the periodic weighted average cost of inventories is carried out for each transaction on disposal of inventories by dividing the total cost of such inventories at the date of the transaction by the total quantity of inventories at the date of the transaction.

METHOD 3. Valuation by the FIFO method. Thus, in conditions of constantly rising prices, the FIFO method gives the highest gross profit. And if we take into account that in the conditions of general price growth, each enterprise seeks to increase the prices for the goods sold, then when applying the FIFO method to the assessment of disposal, the gross profit indicator indicated in the Statement of Financial Results can be considered unreasonably high. Therefore, this method is beneficial for the state for fiscal purposes and leads to the payment of a larger amount of income tax.

Accordingly, in the conditions of constant decline in prices, the opposite process is observed: the gross profit indicator as a result of applying the FIFO method to the assessment of the disposal of inventories and the forced reduction of selling prices for the products (goods) sold by the enterprise is unjustifiably understated in the report.

At the same time, since inventories purchased in conditions of constantly rising prices and valued at disposal by the FIFO method are written off for sale at the lowest of the prices, the inventories that remain on the balance sheet of the enterprise are valued at a cost more or less close to the market value. This means that when analyzing the balance sheet of such an enterprise, the indicators of its own working capital, working capital and, accordingly, the coverage ratio will be not only more optimistic, but also more realistic compared to if this enterprise used the LIFO method when disposing of inventories [8].

METHOD 4. Valuation by the normative method of inventory disposal accounting. The method of normative costs is used in production and consists in the application of norms of costs per unit of products (works, services), which are set by the enterprise, taking into account the normal levels of use of stocks, labor, production capacity and current prices. [13]

In order to ensure the maximum approximation of standard costs to actual costs and prices should be regularly checked and revised.

The standard cost method is used in production enterprises with a small range of products, for example, in the light, food and furniture industries. Its essence lies in the fact that for each type of product manufactured at the enterprise, norms for the use of certain components are developed and approved. Thus, for the manufacture of food products at food industry enterprises, the norms of ingredients are determined by the approved state industry standards [13]. For the manufacture of dishes and semi-finished products (meaning semi-finished products used for further sale), these norms are defined by the Collection of recipes for dishes and culinary products. In the light industry, for the manufacture of products for each type and model, the enterprise independently determines and approves the cost norms.

As a rule, such enterprises constantly change prices for purchased basic materials, raw materials, purchased products and semi-finished products, etc. It is no secret that these changes are in the direction of growth. Therefore, it is advisable for manufacturing enterprises to conclude long-term supply contracts with suppliers. Because, firstly, when concluding a long-term contract, you can get a number of discounts on raw materials and supplies; secondly, the prices for such materials and supplies are determined in advance. In the future, when calculating products, the manufacturer will have the opportunity not to change these cost items for a long time. Moreover, when

concluding long-term supply contracts, money can be paid for each batch of raw materials received [13].

When setting these standards, the normal level of inventory utilization, production capacity, labor remuneration, forecasted production volumes and current prices are taken into account. If you imagine an ideal situation: prices for raw materials and supplies do not change, the company has a regular buyer, production works rhythmically, finished products are shipped according to the plan, variable production costs exactly correspond to the normative ones, and fixed costs remain unchanged, you can easily determine the planned production cost. In this case, it will correspond to the actual cost [13].

However, in practice it is almost impossible. Prices for basic materials and raw materials are constantly changing; wages of employees are changing; actual consumption of materials and raw materials in the production process may exceed the standard. Therefore, there are differences between actual and standard costs, which are conditionally divided into several groups:

1. Quantity variances - differences between actual and standard costs of input components of finished products. This includes their overruns and underruns. In this case, the main task of the accounting department and the head of the enterprise is to minimize such deviations.

2. Cost differences are the differences between the actual and standard cost of raw materials, materials, semi-finished products. In addition, cost differences include differences in other input costs of the production process: wages, utilities, etc.

3. Production differences are differences arising in the volume of output. Production differences mainly arise as a result of the two previous types of differences [13].

METHOD 5. Method of valuation of inventory disposal at selling prices. It may seem that this method is the only one that applies only to the disposal of inventory from the enterprise. It is not so. After all, the trade margin is added to the original cost of goods purchased for further sale at retail already at the stage of posting these goods to account 282. In the future, accounting for the movement of goods at all pre-sale stages can occur at selling prices [10].

At the same time, this does not contradict the requirements of Regulations (standard) of accounting 9 [4] and IFRS 2 [3] regarding the valuation of inventories at the balance sheet date at the lower of cost or net realizable value. After all, on the balance sheet the balance of goods in retail trade is shown curtailed: Balance D-t 282 - Balance K-t 285, that is, taking into account the contract "Trade margin" as an indicator that adjusts the sales value to the level of the original cost.

When choosing one of these methods, it is necessary to be guided by the goals set by each enterprise in a particular situation. The most common methods are: FIFO method, weighted average cost [9].

The method of writing off inventories affects such financial categories as:

- cost of production (works, services) in terms of direct material costs and, as a result, the formation of financial results and profitability;
- the value of current assets in the structure of the balance sheet at the end of the reporting period and, as a result, the liquidity and financial stability of the enterprise. Thus, in conditions of constant price growth, the FIFO method gives the highest gross profit [9].

If we take into account that in the conditions of general price growth each enterprise tends to increase the prices for the goods sold, then when using the FIFO method, the gross profit indicator reflected in the Statement of financial results can be considered overstated. At the same time, if inventories acquired in conditions of constant price growth are accounted for under the FIFO method and written off for sale at the lowest prices, the inventories remaining on the balance sheet

will be valued at a cost closer to market. For organizations that have losses and seek to minimize them in their financial statements, it is more appropriate to apply the FIFO method. Most accountants believe that the FIFO method overstates the profit, and therefore companies pay extra money in the form of income tax. The weighted average cost method shows higher expenses of the period compared to the FIFO method, so it is more profitable for the company. (Table 1). When applying this method, net profit takes an average value and the final cost of inventories is lower than the market value [9].

Comparative analysis of domestic and foreign experience in inventory accounting. Materials, as a rule, are the most important and significant part of the assets of the enterprise, they occupy a special place in the composition of property and dominate the structure of costs of enterprises in various fields of activity, in determining the results of economic activity of the enterprise and in covering information about its financial condition. Inventories are classified as current assets because they can be converted into cash within a year or one operating cycle. To ensure the smooth operation of production, the warehouses of the enterprise should always have production stocks within the norms provided by the needs of the enterprise. In the warehouses of enterprises, business operations are carried out to preserve incoming production stocks, as well as to release them into production. Accounting should ensure control over the balances, receipt and expenditure of inventories in the warehouse, which is an important condition for ensuring the safety of the property of the enterprise [18].

The movement of materials from one business entity to another leads to a change (increase or decrease) in the value and structure of inventories within a particular enterprise. At the same time, the change in the structure of materials reflects the economic aspect of this issue [20].

Table 1.

Advantages and disadvantages of inventory disposal valuation methods

Method of inventory disposal valuation	Advantages	Disadvantages
1	2	3
Identities fic cost price toast	1) the most accurate method; 2) when applying this method, a special marking is used for each unit of inventories, which allows to determine its cost, so the company can regulate profits by selling more expensive or cheaper inventories [6].	1) labor intensity of the method; 2) as a result of using this method, the same stocks are accounted for at different values, which is not always convenient [6].
Among Niezwa wife's cost toasts	1) gives an objective picture of the movement of material assets at the enterprise; 2) when applying this method, net profit will have an average value that is closest to the actual one; 3) the expediency of using this method of inventory valuation is due to the uniformity of their write-off, the reality of the state of inventory balances in the balance sheet and the cost of spent material assets; 4) the method facilitates the work and does not require detailed accounting of movement for each unit of stocks [6].	1) no attention is paid to the most recent prices, and they are more appropriate in assessing income and making management decisions; 2) in the period of rising prices, the method leads to the fact that enterprises declare higher profits than they actually receive, as a result of which excess funds are paid in the form of taxes [6].

First in first out (FIFO) cost of inventories	<p>1) the method is easy to use and prevents the possibility of manipulating profits;</p> <p>2) balances of unused materials are reflected in the balance sheet asset at prices that are as close as possible to the real market value as of the reporting date;</p> <p>3) it is beneficial to apply in case of planned reduction of purchases of materials and in case of expectation of falling prices for manufactured products;</p> <p>4) in the period of constant price growth, the method provides the highest possible level of net income [7].</p>	<p>1) the method leads to underestimation of expenses that are written off at purchase prices to the cost of goods sold;</p> <p>2) in the period of price growth, enterprises declare higher profits than the real ones and pay excess funds in the form of income taxes;</p> <p>3) overestimates financial results, which in conditions of inflation will lead to a decrease in the share of purchase price and to the "washing out" of working capital and lack of payment resources for the purchase of new consignments of goods at prices that are constantly growing [7].</p>
Norm positive cost	<p>1) the possibility of current operational accounting of costs by accounting for deviations from the norms;</p> <p>2) separate accounting of changes in norms, i.e. control over the implementation of the economy regime;</p> <p>3) enlargement of accounting objects, since normative calculations are made for all types of products, and deviations are taken into account by groups of homogeneous products, resulting in a reduced number of calculation objects;</p> <p>4) coverage of a significant part of costs by normative calculations;</p> <p>5) the possibility of less frequent inventory of work in progress [8].</p>	<p>1) constant review of the norms of use of stocks, labor, production capacities and current prices [8]</p>
Prices for sale zhu	<p>1) this method is common in retail trade [8]</p>	<p>1) the balance sheet reflects the sales value of goods less unrealized trade margin, which is calculated using the average percentage of trade margins. The value calculated in this way is quite approximate and may deviate from the real value of goods [8].</p>

The legal or legal aspect is related to the existence of a contract - a document of a legal nature, which is the basis for the implementation of such operations on the movement of inventories. The contract, on the one hand, makes it possible to carry out such operations, on the other - determines the ownership of inventories.

An enterprise can store in its warehouses various types of current tangible assets, and when creating asset reserves, there is a need to organize material responsibility for their safety [20].

Thus, the creation of reserves of stocks in the warehouses of the enterprise in any case determines the need to organize the responsibility of persons in whose responsible custody are inventories.

Inventories in Ukraine are accounted for only on accounts in the permanent inventory accounting system. Production inventories consist of raw materials, basic and auxiliary materials, purchased semi-finished products and components, construction materials, packaging and packaging materials, waste of the main production intended for the production of goods, works, services, maintenance of production and administrative needs [19].

To summarize information on the availability and movement of stocks of raw materials, materials, fuel, components and other stocks, the Chart of Accounts [5] provides for account 20 "Production stocks".

In foreign countries, the methods of analytical accounting of inventories include:

- method of periodic accounting;
- method of continuous (current) accounting [19].

According to the method of periodic accounting, detailed accounting of inventories during the year is not carried out, and at the end of the year an inventory of available inventories should be carried out to determine the level of inventories at the end of the reporting period. The cost of inventories sold cannot be determined until the inventory count is completed, since the calculation of cost is determined as follows: net cost of purchases plus the inventory level at the beginning of the reporting period minus the inventory level at the end of the reporting period. The essence of the method of current (continuous) accounting of inventories is that systematically with the receipt and movement of inventories, their quantity and value are strictly documented. The method provides control over the movement of inventory, signals the need for new orders of materials to replenish stocks, generates information about the optimal order volume. As a result, the volume of available stocks is known throughout the reporting period [19].

There are a number of methods for valuing inventories for financial reporting purposes. Most of them are based on either cost or market price.

The US Institute of Certified Public Accountants states that the primary basis of accounting for inventories is cost, which includes the following elements

- invoice amount, net of discounts upon purchase;
- the amount of insurance for goods in transit;
- relevant taxes and tariffs [14].

Other costs associated with the purchase, acceptance, etc., in principle, should also be included in the cost of inventories. However, in practice, it is so difficult to separate these costs between individual types that they are mostly accounted for as expenses of the reporting period (i.e. included in overheads), rather than as an element of the cost of inventories.

The peculiarities of inventory valuation methods in some countries are:

- in Portugal, in some industries (agriculture, forestry, fishing) inventories may be valued as follows: the book price is determined as the selling price minus a certain profit margin. This method can also be used for inventory accounting in wholesale trade;

- in Spain, inventories are valued at a general fixed rate if they are constantly updated and their total value and structure change insignificantly. As an exception, they can be valued at an

overall fixed rate if they are constantly updated and their overall value and structure change insignificantly;

- in Switzerland, inventories may be valued in the consolidated accounts on the basis of actual current costs, replacement cost or similar costs;
- in Italy, for long-term contracts, work in progress is accounted for either upon completion of the contract or by percentage of completion;
- in the UK it is forbidden to use FIFO and basic stock methods [14].

Long-term contracts for unfinished projects are accounted for by the methods:

- "share of completion", "contract completion";
- in the United States, when using the LIFO method, the accounting policy must determine the amount of the current reproduction cost (cost of movement) of inventories, as well as the impact on the results of operations of a decrease in the inventory lot [14].

National accounting standards are based on International Standards, but according to the specifics of the national system, there are differences in accounting in Ukraine and foreign countries [3].

The LIFO method is an assessment of the disposal of inventories at the prices of the last purchases based on the assumption that the cost of inventories received last is used to determine the cost of goods sold first (last-in, first-out method - LIFO) [17].

The LIFO method has some advantages over the FIFO method, although it is not without drawbacks. If we take into account the well-known statement that the most accurate financial result can be derived by comparing the current cost of goods with their current selling value, then we can assume that the LIFO method has a clear advantage over the FIFO method, since it is the LIFO method that allows you to correlate these two values: the current (market) value of inventories and the current (market) value of sales. In addition, the assessment of the disposal of inventories at current (current market) value allows the enterprise to replenish its stocks in the conditions of rising prices, without looking for additional sources of replenishment of working capital [17].

Thus, due to the fact that the LIFO method at any price fluctuations, i.e. regardless of whether they are rising or falling, assumes that the cost of goods sold (products, works) will be formed by expenses in accordance with the price level at the time of sale, this method, in comparison with others, will show a lower gross profit during inflation and a large one during deflation. Thus, the influence of factors of rise and fall in the economy of the state is smoothed out. (Table 2).

However, since the cost of inventories available at the end of the period refers to earlier purchases, and the cost of inventories sold correlates with the latest purchases, the use of the LIFO method in conditions of rising or falling prices leads to the fact that the balance of inventories is reflected at the prices of the first purchases, that is, their balance sheet value does not coincide with their real value: during inflation it is understated, during deflation - overstated compared to their current market value [17].

All these circumstances arising from price fluctuations must be taken into account when analyzing the balance sheet indicators. That is why in the appendices to the financial statements it is necessary to indicate which of the methods of inventory disposal valuation is used by the enterprise in the reporting period.

Methodological recommendations for improving and choosing the method of inventory disposal valuation. In the context of the need to ensure the effective functioning of business entities to achieve reliable financial results, the choice of methods for assessing the write-off of inventories is an important prerequisite for the organization of accounting for these objects. The importance of

the correct choice of methods for estimating the write-off of inventories is also due to the fact that this type of cost is directly related to the calculation of the cost of production. Thus, in fact, the valuation of inventories is the basis for determining the actual cost and price of manufactured products. Thus, it is very important to choose the optimal method of inventory disposal for each business entity, based on the current and strategic objectives of its activities [12].

Table 2

Methods of inventory disposal valuation, accepted in foreign practice

№	Country	Methods of inventory valuation				
		FIFO	LIFO	Weighted average (average) cost	Net realizable value	Other methods of inventory write-off
1	2	3	4	5	6	7
1	Ukraine	+	Canceled	+	-	The method of identified cost, selling price method
2	United Kingdom		+	+	+	-
3	Greece	+	+	+	-	Basic stock method of finished goods
4	Spain	+	+	+	-	-
5	Italy	+	+	+	-	-
6	Luxembourg		+	+	+	Actual costs
7	Netherlands	+	+	+	-	Method of basic stock of finished and unfinished works
8	Germany	+	+	+	+	-
9	Portugal	+	+	+	-	Standard and special (market) price of the underlying stock
11	USA	+	+	+	-	Retail method
12	France	+	It is used in the preparation of consolidated statements		+	-
13	Switzerland	+	+	+	-	-
14	Sweden	+	-	-	+	Percentage of completion method, contract completion method

Production inventories have a significant impact on the financial result of economic activity, as they have the largest share in the cost of production of most industries in various fields of activity. In this regard, Regulations (standard) of accounting 9 "Inventories" was developed [4].

Considerable attention in Regulations (standard) of accounting 9 "Inventories" [4] is paid to the valuation of inventories. In general, the valuation of the company's property is one of the most important tools that ensure the reliability of accounting information about the results of economic activity. It is carried out by summing up the costs of purchasing and/or manufacturing inventories and determining the amount of costs that are reflected as expenses of the enterprise at the next disposal of inventories.

When inventories are released into production, from production, sale and other disposal, they are evaluated by one of the methods provided by Regulations (standard) of accounting 9 "Inventories" [4]. For all units of inventory accounting that have the same purpose and the same conditions of use, only one of the above methods is used. For inventories of different purposes, different valuation methods can be used simultaneously.

The enterprise faces the task of choosing the method that would best meet its needs:

- did not overstate financial results of activity
- did not underestimate the cost of finished products;
- was simple and easy to use [11].

For application it is important to choose the method that allows the most accurate assessment, taking into account the interests of the owners of the enterprise and the specifics of production activities. In accounting, it is not the number of inventory valuation methods that is very important, but undoubtedly their positive impact when making decisions on pricing for manufactured products and assessing the financial performance of an entity. Also, the method of writing off inventories affects the value of current assets in the structure of the balance sheet at the end of the reporting period and, as a result, the liquidity and financial stability of the enterprise [11].

The analysis of existing methods for estimating the disposal of inventories allowed to identify the following reasons that affect the choice of a particular method:

- different nature and specificity of production inventories (assortment, price, etc.)
- specifics of the enterprise activity (industry, trade, transport, communication)
- place of use (by structural units, departments, workshops, departments);
- economic and legal factor (trends in economic development, tax regulation);
- historical factor (historical prerequisites for the formation of the accounting system);
- information and organizational support (use of computer information systems of accounting, provision of the enterprise with warehouses, other places of storage of stocks) [6].

The choice of a particular method depends mainly on what tasks are solved by the organization in the field of investment, finance and taxation. According to some scholars, the FIFO method should be used by enterprises that plan to make capital investments from their own sources and use the appropriate income tax benefits. The weighted average cost method is considered moderate in terms of impact on profit and liquidity compared to FIFO [8].

Let us consider the impact of the method of valuation of inventories at their disposal on the amount of profit on the example. (Table 3).

Table 3

Initial data on the movement of goods A for the month

Date	Indicator	Number of units	Price per unit, UAH.
01.03.2022 y.	Balance at the beginning of the month	15	10
14.03.2022 y.	Purchased	15	12
17.03.2022 y.	Sold	10	20
24.03.2022 y.	Purchased	17	13
29.03.2022 y.	Sold	12	20

Calculation:

In March, 22 units of product A were sold. The sales revenue was 440 UAH.

Proceeds from the sale = $10 \times 20 + 12 \times 20 = 200 + 240 = 440$ UAH.

Balance at the beginning of the month = $15 \times 10 = 150$ UAH.

In total, 32 units of product A were purchased during the month.

The purchase price is equal to 401 UAH.

Purchased for the month = $15 \times 12 + 17 \times 13 = 180 + 221 = 401$ UAH.

Let's determine the cost of inventories using different methods:

Identified cost

If the company uses the identified cost method, then it is known how many units of product A were disposed of and at what price (from which batch this particular product was) [21].

Disposal of inventories = $10 \text{ units} \times 10 \text{ UAH} = 100$ UAH.

$5 \text{ units} \times 12 \text{ UAH} = 60$ UAH.

$7 \text{ units} \times 13 \text{ UAH} = 91$ UAH.

251 UAH.

Inventory balance at the end of the month = $150 + 401 - 251 = 300$ UAH.

$5 \text{ units} \times 10 \text{ UAH} = 50$ UAH.

$10 \text{ units} \times 12 \text{ UAH} = 120$ UAH.

$10 \text{ units} \times 13 \text{ UAH} = 130$ UAH.

Weighted average price

Disposal of inventories

17.03.2022 $(15 \times 10 + 15 \times 12) / 30 = 330 / 30 = 11$ UAH.

Sale = $10 \times 11 = 110$ UAH.

29.03.2022 $(20 \times 11 + 17 \times 13) / 37 = 441 / 37 = 11.92$ UAH.

Sale = $12 \times 11.92 = 143$ UAH.

Inventory balance at the end of the month = $150 + 180 - 110 + 221 - 143 = 298$ UAH.

Or in a whole month:

Weighted average price: $(15 \times 10 + 15 \times 12 + 17 \times 13) / (15 + 15 + 17) = 551 / 47 = 11.72$ UAH.

Sales = $11.72 \times (10 + 12) = 258$ UAH.

Inventory balance at the end of the month: $150 + 180 + 221 - 258 = 293$ UAH.

FIFO

Disposal of inventories:

17.03.2022p. $10 \text{ items} \times 10 = 100$ UAH.

29.03.2022. $5 \text{ items} \times 10 = 50$ UAH.

$7 \text{ items} \times 12 = 84$ UAH.

Total = 234 UAH.

Inventory balance at the end of the month:

$8 \text{ items} \times 12 = 96$ UAH.

$17 \text{ items} \times 13 = 221$ UAH.

Total = 317 UAH. (Table 4).

Table 4

Impact on profit of different inventory valuation methods (UAH)

№	Indicator	Identifiable cost price	Weighted average price		FIFO
			for each disposal transaction	in total for the month	
1	2	3	4	5	6
1	Revenue from sales (22 units)	440	440	440	440
2	Balance at the beginning of the month	150	150	150	150
3	Purchased	401	401	401	401
4	Balance at the end of the month	300	298	293	317
5	Cost of inventories sold	251	253	258	234
6	Gross profit	189	187	182	206
7	Operating expenses	130	130	130	130
8	Profit before taxation	59	57	52	76
9	Income tax (30%)	18	17	16	23
10	Net profit	41	40	36	53

Thus, it can be concluded that it is more appropriate to use the FIFO method. Although, on the one hand, the FIFO method increases the profit of the enterprise, it provides the most reliable information on the accounting of inventory disposal, because only those goods that were purchased later remain on the balance sheet. The impact of this method on the financial condition of the economic entity can be considered positive, since the balance sheet indicators characterizing the items of current assets are reflected in the value close to the market value.

Thus, the study examined the essence and components of inventory disposal valuation methods. It is determined that there are five methods in Ukraine:

- identified cost of the relevant unit of inventories
- weighted average cost;
- cost of first in time of receipt of inventories (FIFO);
- standard costs;
- selling price.

Each method has its advantages and disadvantages. Thus, the identified cost method is the most time-consuming and the same inventory may have different values. The most equal amount of profit, is less affected by fluctuations in purchase prices, does not require detailed accounting of the movement of each unit of inventory is provided by the weighted average cost method. The FIFO method is easy to apply. The normative cost method allows to estimate inventories at a cost close to the actual cost, but requires regular checking of prices and cost norms.

The article compares and analyzes domestic and foreign experience in inventory accounting, determines the availability and movement of materials. The features of methods in different countries are reflected. Great Britain uses such methods as LIFO, weighted average cost and net cost. Greece, Spain, the Netherlands, Germany and Italy - FIFO, LIFO and weighted average cost.

Some countries also use the method of basic stock of finished goods, actual costs, method of basic stock of finished and unfinished works, standard and special (market) price of basic stock, percentage of completion method, contract completion method, retail method.

The use of the identified cost method in enterprises is limited due to the difficulty of clearly identifying and ensuring the physical and cost movement of inventories from the moment of purchase to the moment of sale, as well as accounting for purchase prices and other expenses for each specific type of inventory. Thus, the identified cost method can be equally applied to both permanent and periodic accounting systems.

In the conditions of rising prices for inventories, the FIFO method provides the lowest cost of sale, which will result in the highest profit. At the same time, the valuation of inventories in the balance sheet using the FIFO method is closest to their actual cost.

Weighted average cost of sales provides a more even amount of profit, is less affected by fluctuations in purchase prices than other methods. When using this method, the net profit for the month as a whole will be the lowest.

Therefore, the use of the FIFO method is the most appropriate for use in enterprises. The impact of this method on the financial condition of the economic entity can be considered positive, since the balance sheet indicators characterizing the items of current assets are reflected in the value close to the market value.

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CERTIFICATION AND DIGITIZATION AS MODERN METHODS OF IMPROVING AUDIT QUALITY

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Today, Ukraine is integrating into the world economy, creating conditions for attracting foreign capital. One of the problems on this path is the low quality and reliability of information about the financial and economic condition of enterprises. One of the options for improving the quality of financial information is the use of an audit institute.

In countries that do not have many years of experience of professional traditions in auditing, audit activity is defined as a tool for stabilizing the economy.

Audit activity is an independent professional activity of auditors and audit firms providing audit services. Its key aspect is the audit of financial statements, which performs an extremely important function and confirms the reliability and impartiality of information provided to users of financial statements. This ensures a significant reduction of the risks associated with making management decisions, increases trust in the enterprise on the part of partners and society.

Challenges related to the constant complication and increase in the number of business operations, digitalization of business processes, force audit firms to adapt and raise the quality standards of their activities, to introduce modern technologies, for example, audit software and data analysis tools. This will make it possible to respond appropriately to the risks of significant distortion of financial reporting in new realities, and will increase the efficiency and effectiveness of the task, ensuring a reduction in the number of errors due to the human factor. The use of digital technologies will reduce the time of individual tests, giving the auditor more time to focus on areas of increased audit risk. At the same time, the implementation of digital technologies in Ukraine is at a low level.

Increasing auditor certification requirements and bringing them closer to EU standards will allow auditors to integrate even more into the global community.

The market of auditing services in Ukraine remains open to foreign auditing firms and is characterized by fierce competition. Therefore, holding the market segment by Ukrainian auditing entities is possible only with the introduction of innovative auditing methods, digital technologies, increased requirements for attestation and restoration of trust in the value of domestic auditing services.

The issues of audit development in the conditions of digitalization are constantly in the field of view of scientists. R. Manita, Na. Elommalb, P. Baudier, L. Hikkerova [24] studied the impact of the use of computer technologies on the quality of audit services and the development of the audit firm. They proved that the digitization of business processes in the audit firm will improve the relevance of the audit and allow expanding the list of audit services. At the same time, the quality of the audit will improve by analyzing all the client's data.

Nezhiva M. and Minyailo V. [25] investigated the trends of audit digitization in the conditions of economic transformation and COVID-19. They proved that the technological integration of audit based on modern information systems increases the effectiveness of the auditor's analytical work.

The authors [17-19] studied the peculiarities of the implementation of complex auditing software (GAS) in different countries of the world..

The problem of auditor certification remains urgent and is widely discussed in the scientific works of such authors as Antonyuk O. R., Doroshenko O. O., Drozd I. K., Kuznetsova S. A. and Kuznetsov A. A. [4], Nazarova K O., Petryk O. A.

The special relevance of the problem is caused by the changes made to the procedure for the certification of auditors by the Law of Ukraine "On the Audit of Financial Statements and Auditing Activities" [2]. There are ongoing discussions about the extent to which the changes will contribute to increasing the auditor's social responsibility, whether the audit services market will not collapse on this basis.

Despite the current processes of harmonization of accounting and auditing in Ukraine with the provisions of the International Auditing Standards, the issues of compliance of the certification of auditors in Ukraine and in foreign practice remain uncoordinated.

The experience of the countries of the European Union [6, 7, 8], the USA and countries developing audit in the post-Soviet space is valuable for Ukraine. However, the problem of adapting the world experience of auditor certification to the program of national reforms is unresolved and requires in-depth research.

The purpose of the study is to justify the role of auditor certification and audit digitalization as factors in improving the quality of audit services and the possibility of Ukraine's integration into the world economy. Accordingly, the following tasks are set in the article:

- conduct an analytical review of the audit services market;
- analyze the quality of audit in Ukraine;
- investigate the level of digitization of audit in Ukraine;
- conduct a comparative analysis of the auditor certification process in different countries.

Audit in Ukraine has undergone three stages in its development: confirmatory, system-oriented and risk-oriented audit [1] (table 1).

During the confirmatory audit, the auditor's attention was directed only to a detailed check of primary documents, accounting registers and financial statements in order to confirm the reliability of accounting and reporting data.

The advantages of this approach to auditing are that it is the most objective, reliable and understandable from the point of view of customers and users. The main disadvantage is the high level of labor intensity and high expenditure of time and human resources, and as a result - the high cost of services. During a confirmatory audit, the auditor does not always reveal facts that occurred but are not reflected in the accounting.

With a system-oriented audit, the emphasis is shifted to the study of the effectiveness of the management system and internal control. Checking the accuracy of accounting and reporting involves the need to study the company's internal control system and make a decision about its effectiveness or ineffectiveness. This became the basis for making a decision about the need and scope of further detailed verification and materiality tests. If, based on the results of the assessment, the auditor established that the internal control system is effective, and then he made a decision to reduce the scope of the detailed examination of primary documents.

The advantages of this approach to the audit are the consistency and balance of the "effectiveness" and "duration" criteria of the audit. This method formed the basis of international auditing standards. He, in addition to confirming the truthfulness of financial statements, provides the client with information about the state of the internal control system.

The main disadvantage of the system-oriented approach to auditing is the difficulty of objective assessment of the client's internal control system and a significant level of subjectivity and professional judgment.

Table 1.

Evolution of approaches to the audit procedure

Stages of audit development	The purpose of the audit	Audit methodology	Stages of the audit process
1	2	3	4
Confirmatory audit (1850 - end of 1940. XX century)	Prevention and detection of errors, abuses and fraud through a detailed analysis of each business transaction, information about which is provided in the records	Confirmation of records. Full audit of accounting records	<p>1. Initial stage</p> <p>1.1. Selection of the subject of the audit, familiarization with its business and accounting status. 1.2. Acquaintance with the charter, constituent documents, order on accounting policy and legal obligations of the client.</p> <p>1.3. Determining the scope of work, agreeing the amount of payment and drawing up agreements.</p> <p>2. Experimental stage</p> <p>2.1. Verification of business transactions and accounts.</p> <p>2.2. Adjustment of the audit plan.</p> <p>2.3. Verification of the veracity of reporting data.</p> <p>3. Final stage</p> <p>3.1. Analysis and generalization of inspection results.</p> <p>3.2. Preparation of the auditor's report and proposals for improving accounting.</p> <p>3.3. Acquaintance of the client with detected violations and proposals.</p> <p>3.3. Compilation of the act of completed works</p>
System-oriented audit (1949 – 1970)	Confirmation of the veracity of accounting data and financial reporting through control and analysis of the internal control system	Tests of the internal control system, balances on accounting accounts. A random check based on the results of the assessment of the internal control system	<p>1. Initial stage</p> <p>1.1. Selection of the subject of the audit, familiarization with its business and accounting status. 1.2. Acquaintance with the charter, constituent documents, order on accounting policy and legal obligations of the client.</p> <p>1.3. Evaluation of the internal control system. 1.4. Determination of the scope of work, agreement on the amount of payment and conclusion of the contract</p> <p>2. Research stage (or main)</p> <p>2.1. Examination of business transactions and accounts, compliance tests and substantive tests.</p> <p>2.2. Adjustment of the audit plan.</p> <p>2.3. Verification of the truthfulness of financial statements.</p> <p>3. Final stage</p> <p>3.1. Analysis and generalization of</p>

			<p>inspection results.</p> <p>3.2. Preparation of the auditor's report</p> <p>3.3 Preparation of proposals for improving accounting and improving the internal control system.</p> <p>3.4. Acquaintance of the client with detected violations and proposals for improving the accounting and internal control system.</p> <p>3.3. Compilation of the act of completed works</p>
Risk-oriented audit (3 1970 p.)	<p>Confirmation of the veracity of accounting data and financial reporting by analyzing internal control systems, assessing activity risks.</p> <p>Identification of the probability of a negative impact of various types of risks on the accounting system and the activity of the enterprise as a whole</p>	<p>Preliminary assessment of audit risk.</p> <p>Analysis of business risks.</p> <p>Tests of the internal control system, records in accounting</p>	<p>1. Initial stage</p> <p>1.1. Selection of the subject of the audit, familiarization with its business and accounting status.</p> <p>1.2. Acquaintance with the charter, constituent documents, order on accounting policy and legal obligations of the client.</p> <p>1.3. Evaluation of the internal control system.</p> <p>1.4. Assessment of inherent risk and control risk, calculation of audit risk and non-detection risk.</p> <p>1.5. Analysis of business risks.</p> <p>1.6. Determining the scope of work, agreeing the amount of payment and drawing up agreements.</p> <p>2. Experimental stage</p> <p>2.1. Examination of business transactions and accounts, compliance tests and substantive tests.</p> <p>2.2. Adjustment of the audit plan.</p> <p>2.3. Verification of the reliability of financial statements.</p> <p>3. Final stage</p> <p>3.1. Analysis and generalization of inspection results.</p> <p>3.2. Preparation of the auditor's report.</p> <p>3.3 Preparation of the auditor's proposals for improving accounting, improving the internal control system.</p> <p>3.4. Preparation of a map of risks and preventive actions.</p> <p>3.5. Acquaintance of the client with detected violations and proposals.</p> <p>3.6. Compilation of the act of completed works.</p>

In risk-oriented auditing, which is gaining particular popularity now, statistical and non-static methods of obtaining audit evidence are used, and the auditor pays attention not only to the

evaluation of the effectiveness of the internal control system, but also to the evaluation of internal risk factors. At the same time, the following factors are evaluated: the control environment, the presence of influence on management personnel, the parties involved in the operations, the financial condition of the enterprise.

This approach to auditing is the most progressive. It gives greater importance to audit evidence than that obtained based on the study of inherent risk factors. The use of the risk analysis method allows to reduce the volume of audit procedures as much as possible, without reducing its quality.

At the same time, the risk-oriented approach is quite complex, and therefore it is only beginning to be applied in Ukraine. The impetus for this was the changes made to the ISA and changes in the EU legislation in the field of audit, which took place in June 2016. They had a significant impact on the activities of public interest entities of the EU member states. On September 1, 2017, Ukraine became an associated member of the EU, which increased the importance of awareness of the need to improve the quality of audit activity by all audit firms of Ukraine.

It was the orientation of Ukraine towards the EU that led to the adoption of the new Law of Ukraine " On audit of financial statements and auditing" [2] and marked the beginning of a fundamentally new stage of development - the audit of social responsibility. The formation of a social responsibility audit characterizes the acquisition of a higher qualitative level of responsibility of the subject of the audit for the results of its activities before society and the state.

In order for Ukraine to meet business standards and be of interest to EU investors, the result of the implementation of the reforms should be the maximum approximation of the requirements for the quality of audit activity as a guarantee of safe business. Fundamental to this is the improvement of requirements for the quality of audits and certification of auditors.

The new legislation introduced completely new requirements for obtaining an auditor's charter, significantly complicated the procedure for obtaining an auditor's certificate, and increased requirements for the quality of audit activity subjects. All this led to a sharp reduction in the number of audit firms in recent years (table 2).

Table 2.

**Number of auditors and subjects of audit activity in Ukraine for 2017–2021
(as of the beginning of the period)**

Number of people	2017	2018	2020	2021	The absolute deviation of 2021 from			The growth rate of 2021 is relative		
					2017	2018	2020	2017	2018	2020
1. Auditors	2646	2653	2718	2713	67	60	-5	102,53	102,26	99,82
2. Audit firms	1008	959	899	893	-115	-66	-6	88,59	93,12	99,33
including										
2.1. Audit firms that conduct mandatory audits of financial statements	x	x	242	239	x	x	-3	x	x	98,76
2.2. Audit firms that conduct mandatory audits of financial statements of enterprises of public interest	x	x	88	84	x	x	-4	x	x	95,45

Source: calculated based on data from the Register of auditors and audit entities and Reports of the Audit Chamber of Ukraine [3].

At the beginning of 2021, 2,718 auditors were certified in Ukraine. This is less than in 2020 by five auditors.

At the beginning of 2021, only 893 audit firms were operating, which is significantly less than in previous years.

Compared to 2017, the number of audit firms decreased by 115 firms (or by 11.41%). This is explained by the increased requirements for the activities of audit firms.

The legislation imposes the most requirements on those audit firms that have the right to conduct audit firms that conduct mandatory audits of financial statements of enterprises of public interest. Therefore, the specific weight of audit firms that have the right to conduct audits of enterprises of public interest in the structure of all audit firms is only 9.4% (figure 3).

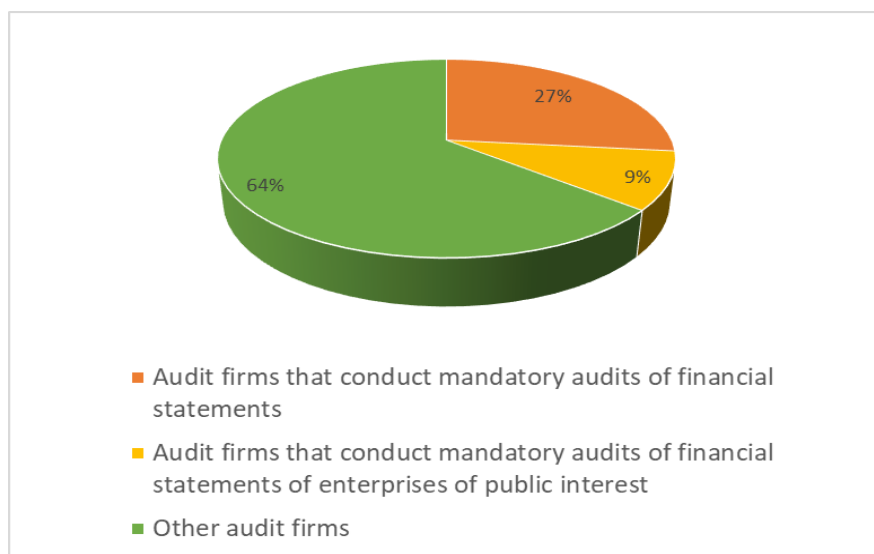


Fig. 1. The structure of audit firms is entitled to conduct a mandatory audit at the beginning of 2021, percentage

In recent years, there has been a general trend in Ukraine to reduce the number of non-audit services provided and proactive audits, which are the main source of income for small audit firms (table 3, Figure 2).

Table 3.

Services provided by audit firms in Ukraine during 2019-2022, units

Type of engagement	Period			The absolute deviation		Growth rate, %	
	2019	2020	2021	2020 from 2019	2021 from 2020	2020 / 2019	2021 / 2020
Initiative Assurance engagement	4464	4115	3896	-349	-219	-7,82	-5,32
Mandatory Assurance engagement	6179	7358	7586	1179	228	19,08	3,10
Related services	5128	4061	3741	-1067	-320	-20,81	-7,88
Non-audit services	17473	15899	14784	-1574	-1115	-9,01	-7,01

Source: [3, 4].

It should be noted that during 2019-2021 there was an increase only in the number of mandatory assurance engagement, which, in the vast majority, small audit firms cannot perform,

because they do not meet the requirements of the Law of Ukraine "On the Audit of Financial Statements and Auditing" regarding the right conducting a mandatory audit, including enterprises of public interest.

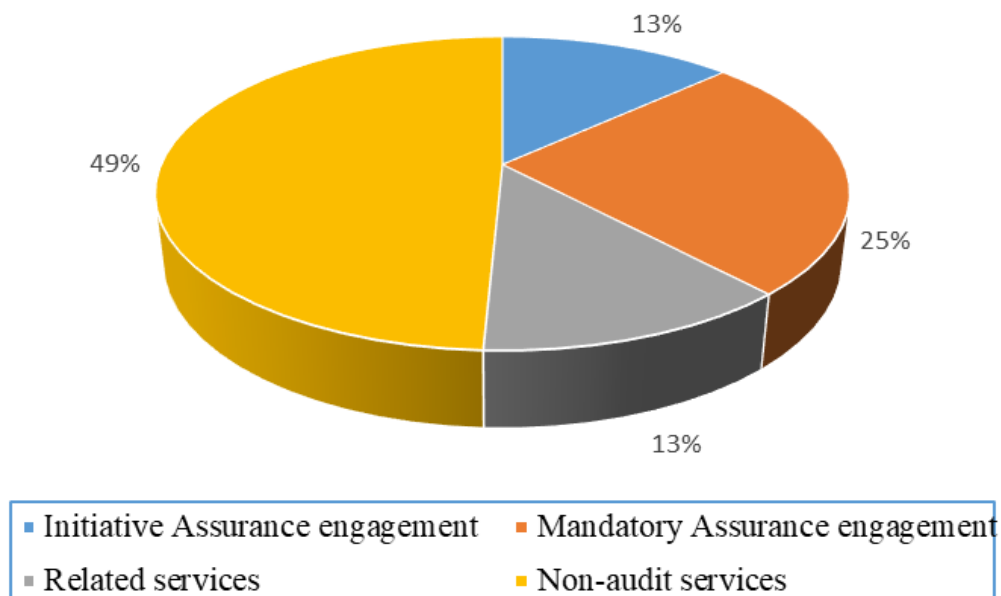


Fig. 2. Structure of services provided by audit firms in Ukraine in 2021

In general, the following problems can be identified in the activities of auditors:

- decrease in demand for initiative audit, related and non-audit services;
- complication of legislative requirements regarding audit activities;
- intense competitive pressure from the Big Four audit firms, international audit firms and domestic large audit firms;
- a low level of resistance to the occurrence of business risks due to a small number of qualified personnel and the lack of the possibility of conducting audits of enterprises of public interest, which significantly limits the scope of services provided;
- low level of management, automation of activities, organization of internal quality control and economic security system.

The impact of these problems is even more felt in the conditions of the war in Ukraine.

Today, the world is at the stage of the fourth industrial revolution, when computer technologies penetrate into all spheres of society.

Therefore, audit firms must adapt to new life realities, constantly improve the quality of their services, comprehensively implement digital technologies and provide the firm with professional personnel.

This is becoming more and more relevant in the conditions of growing competition in the audit services market and the significant influence of the Big-4.

Despite the fact that the market size in 2020 increased by 11% compared to the previous period, almost half of the audit services market is occupied by the "big four" firms [14] (рис. 1).

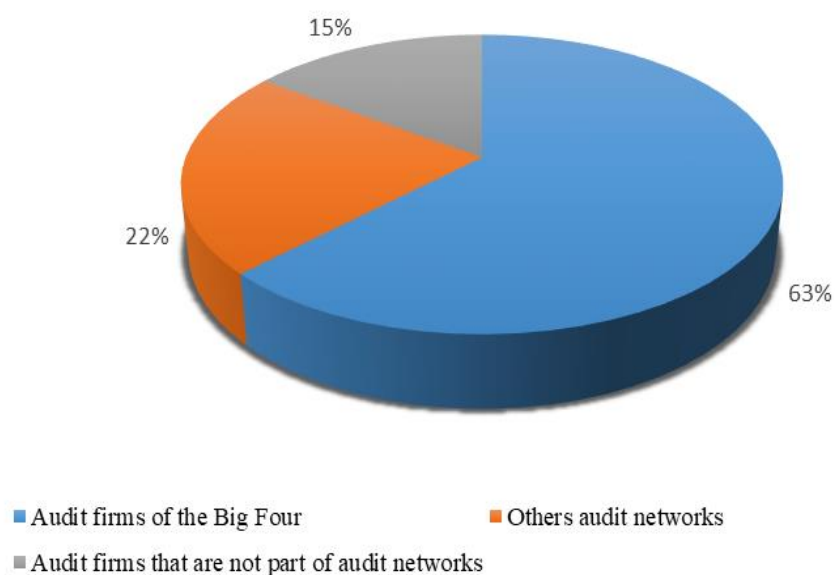


Fig. 3. Share of the value of audit services provided to enterprises of public interest by subjects of audit activity in 2020, %

Source: compiled by the author based on data [14].

Only those firms can withstand such a competitive struggle with international audit firms, which will start to implement innovative digital methods in time, increase the quality of personnel, which will allow to reduce the cost of the provided services, while increasing their quality.

In 2020, on the contrary, there is an increase in the average cost of one audit service provided by audit firms for each type of audit services (Figure 4) [14].

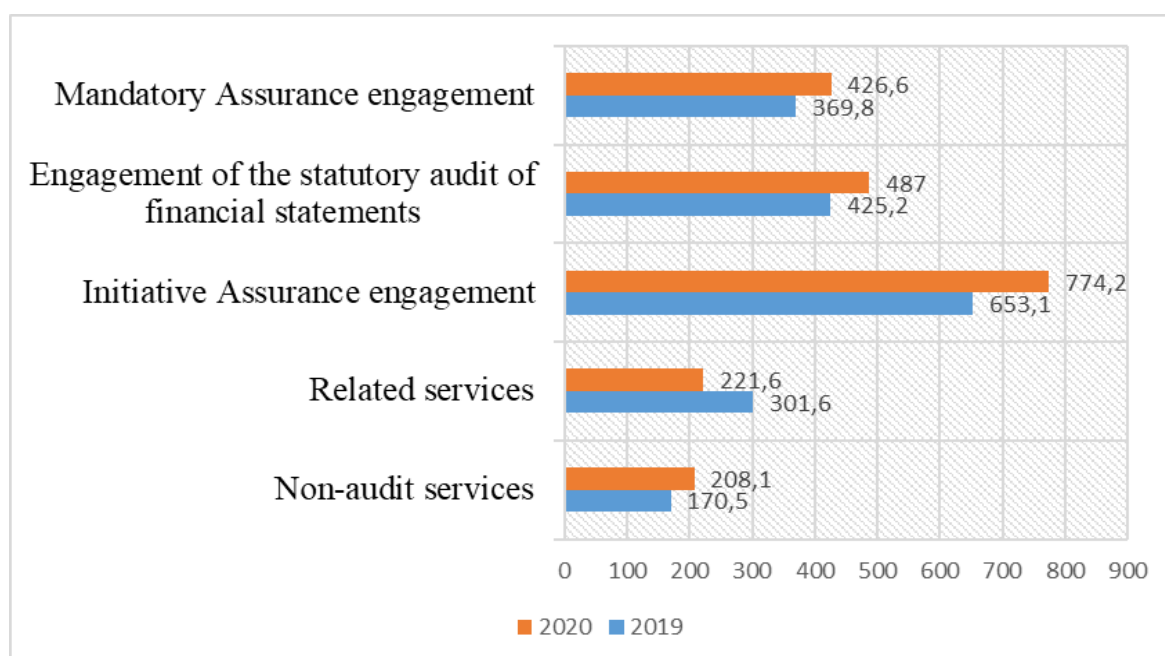


Fig. 4. The average cost of one service provided by auditing firms in 2019-2020, thousand UAH

Source: compiled by the author based on data [14].

At the same time, the quality of auditing services in Ukraine still remains at an average level. This is evidenced by the fact that at least one deficiency was found in almost 86% of audit entities

that passed the quality control inspection in 2019 and 2020 [14].

At the same time, the vast majority of audit firms that have the right to conduct mandatory audits of financial statements of enterprises of public interest" passed the audit with mandatory recommendations (in 2019, 8 audit entity or 50%, in 2020 17 audit entity or 59%, in 2021 25 audit entity or 61%).

During the inspection by Organization of public oversight of the auditing, the internal procedures of audit firms were studied, working documents, audit reports and other reports, contracts for the provision of audit services, internal administrative acts regarding

- compliance with the applied international auditing standards, independence requirements and other requirements of the Law, including ensuring the reliability of information submitted for inclusion in the Register of auditors and subjects of audit activity;

- the quantity and quality of used resources, including compliance with the requirements for continuous professional training of auditors;

- compliance with the requirements regarding remuneration for audit services, if they are established;

- effectiveness of the audit firm's internal quality control system;

- the reliability of the information in the audit firm's transparency report.

As the results of the study show, the vast majority of audit firms are currently experiencing difficulties in such areas:

- upon receipt of acceptable audit evidence in sufficient volume;

- when drawing up appropriate audit documentation;

- when checking accounts, ;

- when assessing audit risks;

- when applying the principles of due professional diligence and skepticism.

In addition, some audit firms have not yet implemented ISA 540 (Revised) "Auditing Accounting Estimates and Related Disclosures" in their operations.

Table 4 shows the areas of identified significant shortcomings in the performance of tasks from the mandatory audit of financial statements of enterprises of public interest.

In 2020, there are no significant changes in the areas of deficiencies and the frequency of their detection compared to the previous year. This indicates an unsatisfactory level of consideration by the audit entities of the generalized results of inspections of the Quality Inspection. Another reason is the failure of audit entities to take preventive measures to eliminate problems in advance.

The most frequent violations that significantly reduce the quality of audit services and were discovered by the Inspectorate during the inspection were:

- lack of sufficient and acceptable audit evidence;

- fragmentation of audit documentation;

- insufficient justification of audit risk assessment;

- cases of failure to apply the principles of due diligence and skepticism.

A large number of significant deficiencies leads to the existence of an increased risk of such audit firms not obtaining reasonable assurance that the financial statements as a whole do not contain a material misstatement due to fraud or error [14].

Table 4.

Disadvantages of performing audit engagement in 2020-2021

Areas in which significant deficiencies were identified during the audit	% of audit firms that were subject to inspection and in which a deficiency was found	
	2020 році	2021 році
Procedures for handling fraud	10	10
Assessment of risks of material misstatement	9	11
Adequacy of financial reporting and disclosures	8	9
Procedures in substance	7	6
Understanding internal control	6	6
Consideration by the auditor of other information	6	6
Analytical procedures in planning	4	4
Events after the reporting period	4	3
Accounting estimates, including fair value	4	4
Recognition of income	4	3
Audit report	4	6
Related party transactions	3	4
Testing of internal control measures	3	4
Quality of audit evidence	3	2
External confirmations	3	3
Audit sample	3	3
Consideration of court cases and claims	2	2
Inventory procedures	2	2
Balances at the beginning of the period	2	2
Written assurances	2	1
Materiality	2	2
Acceptance and continuation of relations with clients	2	1
Business continuity	2	1
Other	5	5

The consequence of this may be the expression of an unreliable audit opinion in the independent auditor's report and a decrease in public trust in the audit institute in Ukraine.

Another fact that testifies to insufficiently high quality of audit services is the fact of systematic application of fines by Audit Chamber of Ukraine and Audit public oversight body to audit entities (Table 5).

Table 5.

Disciplinary sanctions applied by Audit Chamber of Ukraine and Audit public oversight body to audit entities during 2020-2022

Type of disciplinary action	The number of audit entities, to which the penalty was applied		
	2020 рік	2021 рік	2022 рік
Suspension of the right to provide financial reporting audit services for a period of up to one year	6	6	3
Suspension of the right to provide audit services for a period of one to two years	-	1	2
Suspension of the right to provide audit services for a period of two to three years	2	-	-
Warning	25	30	1
In total	33	37	6

Source: compiled by the author based on data [8].

During 2020-2022, the most common type of professional liability of auditors was the application of a disciplinary sanction in the form of a warning. In 2021, the number of auditors who received a warning increased by 5 people (or by 20%) compared to the previous year.

Global trends characterize the activity of the development of the audit services market for the needs of the economy. In particular, it is expected that about 1.44 million people will be employed in the field of accounting and auditing in the USA in 2025 [3].

In 2019, the number of employees of the leader of the "Big Four" Deloitte worldwide was 312,028 specialists [4]. The market of auditing services in Ukraine remains open to foreign auditing firms and is characterized by fierce competition. Therefore, the retention of the market segment by Ukrainian auditing entities is possible only with increased requirements for the use of digital technologies, certification and restoration of trust in the value of domestic auditing services.

However, today the number of audit firms in Ukraine that use modern information technologies in their activities still remains low (Table 6, Figure 4).

Table 6.

Use of information technologies by audit firms

Question	Percentage of respondents who answered: %	
	Yes	No / undecided
Is software (including Word, Excell) used to automate the process of providing audit services?	60,8%	39,2%
Does the audit firm plan to implement software to automate the provision of audit services?	70,6%	29,4
Does the audit firm use software for data extraction and analysis (except for Excell) during the audit?	41,2%	58,8%
Does the audit firm use business process intelligence (GAS) software when conducting audits?	3,9%	96,1%
Does the audit firm use robotic process automation (RPA) to perform audit procedures?	7,8%	92,2%

Source: compiled by the author based on data [14].

Such a low level of audit automation in Ukraine is due to a number of reasons.

One of them is the resistance of the staff to the introduction of new progressive work tools. As a rule, employees of audit firms do not realize the importance of software. They do not want to study the capabilities of information systems. This problem can be eliminated by increasing auditors' awareness of the benefits of digital technologies.

The first source is a combination of practical activities and personal learning. This is the most suitable way, where the presented technology would be accepted and implemented by the auditing company.

The second source is participation in seminars held by professional organizations. The value of the provided information lies in new, different approaches to the study of audit information systems. During the seminar, colleagues can share perspectives that are not available to a regular lecturer. However, the seminars include expenses, not only for the programs, but also for travel,

accommodation and lost work time. In addition, some seminars do not provide in-depth technical and practical competence in software solutions for auditing.

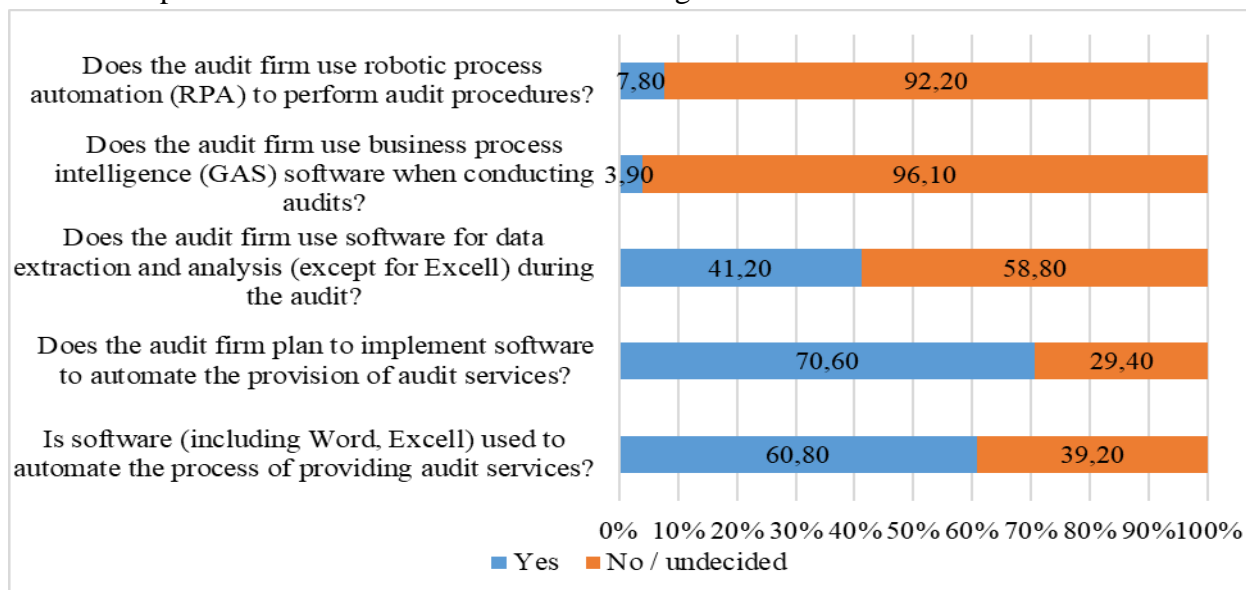


Fig. 4. Automation of audit services in Ukraine as of the beginning of 2022, Percentage of respondents

A third source is found in the traditional university academic environment. Therefore, higher education institutions, when developing their educational programs, should take into account the requirements of employers as much as possible. This will ensure the competitive advantages of own graduates in the audit services market.

Another reason for the low level of audit digitalization is the lack of a clear classification of computerized audit methods and the lack of awareness of the benefits of their application.

According to the International Standards for the Professional Practice of Internal Auditing, "Technology-based Audit Techniques are automated audit tool, such as generalized audit software (hereinafter GAS), test data generators, computerized audit programs, specialized audit utilities, and computer-assisted audit techniques (CAATs) [16] (Figure 5).

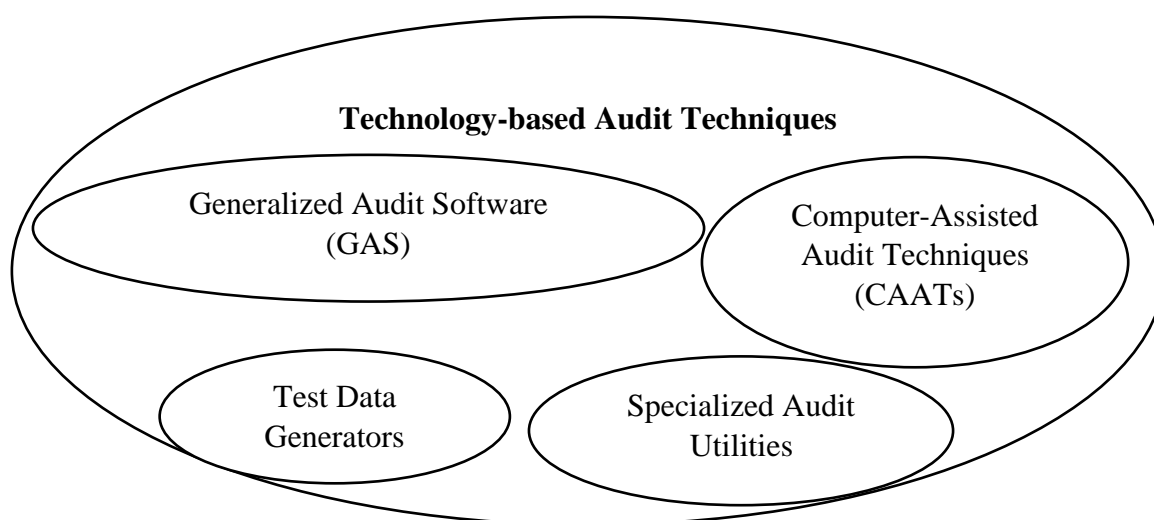


Fig. 5. The place of generalized audit software in Technology-based Audit Techniques in accordance with the International Standards of Professional Practice of Internal Audit (2017 edition)

In scientific circles, there is an opinion that Generalized Audit Software (GAS) is one of the forms of Computer-Assisted Audit Techniques (CAAT), which include: utility Software, Test Data, Parallel Simulation, Integrated Test Centers (ITF), Embedded Audit Modules (EAM). In turn, complex audit software is divided into commercial and independently developed by the enterprise (Figure 6).

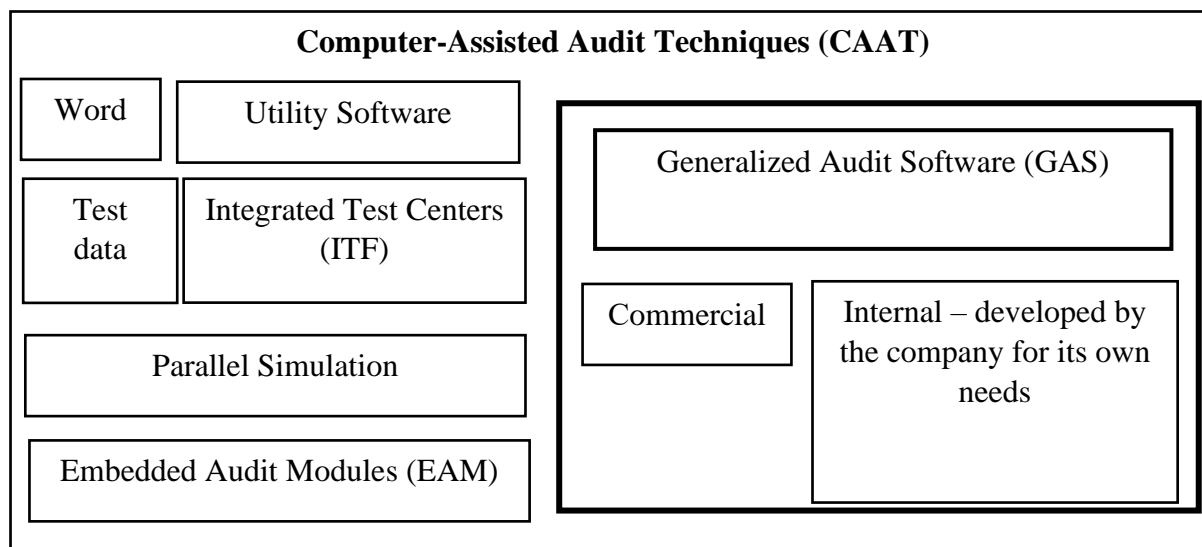


Fig. 6. Generalized Audit Software (GAS) as part of Computer-Assisted Audit Techniques (CAAT)

The timeliness of implementing Generalized Audit Software (GAS) in Ukraine is confirmed by the fact that auditors among other software products in the USA, India and EU countries [17] most often use it.

The main advantages of using GAS are:

- speeding up the audit, increasing the volume of work performed by the auditor in the same period of time [18, 19];
- improving the quality and reliability of the auditor's work [18, 19];
- improvement of business understanding, improvement of audit creativity [19];
- more in-depth analytical research [20];
- improvement of the discipline and cooperation of the audit team with the structural divisions of the enterprise [19].

At the same time, the reasons preventing the implementation of Generalized Audit Software in different countries are, in the vast majority, common (Table 7).

It should be noted that complex audit software is practically not used in Ukraine. Auditors prefer systems-oriented or risk-oriented approaches to auditing using a sample research method [22].

We believe that this is a disadvantage, because the fundamental difference of complex audit software is that it allows you to check the entire general population, the entire set of documents or accounts of analytical accounting, without increasing the time for conducting the audit. This is extremely relevant for Ukraine, as a country with an increased risk of fraud and distortion of data in accounting and reporting.

Studies have shown that at some innovative, competitive enterprises (the vast majority with foreign investments) when conducting internal audits, complex audit software is still successfully

used, in particular, Audit Command language (ACL), Interactive Data Extraction and Analysis (IDEA), Statistical Analysis System (SAS).

Table 7

Problems of implementing Generalized Audit Software in the world

Country, year of study	Reasons that prevent the implementation and use of GAS
Singapore, 2005, [20]	Availability of own corporate systems. Difficulties in using Generalized Audit Software and its cost. Auditors prefer compliance testing and evaluation of the internal control system without the use of Generalized Audit Software.
USA, 2017, [17]	Ignorance of auditors regarding the benefits of using Generalized Audit Software. High cost of Generalized Audit Software. Psychological barriers
Australia, 2018, [18]	The use of Generalized Audit Software is not one of the most important KPIs, and internal auditors who use Generalized Audit Software do not receive additional compensation for it.
South Africa, 2017, [21]	Difficulty building queries with the right set of analytics. Access to relevant and accurate organization data is not always available. Lack of time and resources to implement Generalized Audit Software, unwillingness to pay higher salaries for auditors who are familiar with Generalized Audit Software.
USA, Great Britain, 2016, [19]	Low support from management, colleagues and professional organizations. Ignorance of auditors about the benefits of using Generalized Audit Software. Voluntary use of Generalized Audit Software
Ukraine, 2020 [22]	High cost, not understanding the benefits, not wanting to change, not trusting computer technology

This software has the ability to read computer data from different types of databases and generate different types of queries when performing audit tasks, meaning that this software can be used for both compliance testing and substantive testing.

Table 8 compares ACL and IDEA as the most common types of GAS in Ukraine.

Table 8

Comparison of ACL and IDEA as types of Generalized Audit Software

	ACL	IDEA
advantage	1) flexible architecture (audit planning, independent development and adjustment of audit scenarios (possibility of applying own methods);	1) Versatility, the ability to download any structured information in various formats;
	2) focus on external audit;	2) using the method of successive exclusions
	3) high level of security;	
	4) the ability to process large volumes of data, focus on fraud detection	
	5) automated collection of analytical information;	5) the possibility of phased implementation;
	6) online support and training;	6) the possibility of integration with the existing system used by the auditor;
	7) availability of a library of analytical tests that the auditor can use when writing conclusions	7) using more than a hundred integrated tests;
		8) the possibility of recording analytical procedures, with their further reproduction in the future
Disadvantages	cost of acquisition and maintenance	
	lack of a Ukrainian-language interface	
	the need for specialized training	

The data in Table 8 show that both IDEA and ACL are equipped with functionality for conducting various types of audits: each type separately, as well as a full-scale holistic assessment.

These systems are specialized professional auditing software, the functionality of which ensures the extraction (copying) of data from the audit firm's client reports and their further analysis using queries, stratification, samples, determination of lost sequences, statistical analysis, calculations, search for data duplication, summary tables, cross-tabulation, etc.

The general characteristics of the ACL and IDEA software differ only in the special tools that the developer has laid in the basis of the creation of this software product, namely: ACL - based on the assessment of the risks of tax evasion, and IDEA - based on the method of successive exclusions.

At the same time, we note that the complex audit software ACL provides greater opportunities and can significantly simplify the audit process (78%), but at the same time it is quite difficult to use and requires long-term training and special knowledge in the field of IT.

After analyzing the capabilities of ACL and IDEA, evaluating its advantages and disadvantages, we concluded that at the initial stage of the introduction of automated audit in Ukraine, it is advisable to use the IDEA software, because its platform can be integrated into the system used by the auditing company.

To use this software, the auditor needs basic knowledge in the field of IT, because the CaseWare IDEA kit contains a built-in package of tips, guides and training programs. Therefore, it will significantly speed up and simplify data analysis procedures, significantly reduce the amount of work time spent on conducting an audit, and therefore its cost. And, as a result, audit efficiency and the probability of fraud detection will increase due to the reduction of human intervention in the selection of risks for verification, analysis of the entire population and in-depth audit research.

Today, almost the only type of GAS used by Ukrainian auditors is Excel. However, compared to other comprehensive audit software, it does not allow investigating the integrity of client data and has limited functionality.

Despite the significant advantages of digital technologies, the conducted research showed that software products are not able to completely replace the auditor. At the same time, they can significantly speed up and facilitate the audit process in the following areas:

- 1) formation of the audit sample based on the specified parameters. The program will automatically calculate the most risky transactions, and suggest that they be prioritized in the study;
- 2) carrying out mathematical calculations and analysis of a significant array of data;
- 3) creation of new rules for data analysis and modification of existing rules;
- 4) monitoring data changes during their integration into various subsystems;
- 5) preservation of information regarding all conducted analyses;
- 6) preservation of information on detected deviations and automatic expansion of the sample in case of exceeding the established limits;
- 7) conversion of data into various formats, which are necessary for their uploading to various systems (allows to reduce the time in additional processing of information);
- 8) reducing the risk of audit errors;
- 9) increasing the reliability of the received data;
- 10) creation and management of working documents (both online and offline);
- 11) the possibility of providing access with defined rights to audit documents to representatives of the control body; to the customer; to a third-party auditing company and other interested parties;

- 12) avoiding double editing of the same file by using a special blocking mechanism and automatic warning of editing;
- 13) creation of requests for any section of the audit, which can be sent to the client or a third-party organization by means of electronic communication;
- 14) introduction, assessment and management of risks faced by the organization;
- 15) attaching files of various formats to the audit;
- 16) creation of multi-year audit plans based on the results of the client's past audits;
- 17) use of available built-in tests;
- 18) recovery of mistakenly deleted files or checks.

In Ukraine, there is no requirement for auditors to use complex auditing software. But, in our opinion, it will eventually become the need of the hour. This is explained, first of all, by the fact that mass digitalization and advanced technologies, which are already used by most of the successful enterprises-clients of audit firms, require the latter to be more innovative and to fully use the advantages provided by the latest information technologies in auditing.

The special urgency of the problem of increasing the staffing of audit firms is determined by the changes made to the procedure for the certification of auditors by the Law of Ukraine "On the Audit of Financial Statements and Auditing" [2]. There are ongoing discussions about the extent to which the changes will contribute to increasing the auditor's social responsibility, whether the audit services market will not collapse on this basis.

Despite the current processes of harmonization of accounting and auditing in Ukraine with the provisions of International Standards, the issues of conformity of certification of auditors in Ukraine and in foreign practice remain unresolved.

The experience of the countries of the European Union [6, 7, 8], the USA and countries developing audit in the post-Soviet space is valuable for Ukraine.

However, the problem of adapting the world experience of auditor certification to the program of national reforms is unresolved and requires in-depth research.

The auditor bears moral-ethical, civil-legal, administrative and criminal responsibility for the expressed positive or negative opinion, if it does not correspond to the actual state of affairs [10, p. 46]. It is this that significantly increases the requirements for auditors' qualifications, and therefore for their certification.

Valid until October 2018, the auditor certification procedure in Ukraine ensured a two-stage screening of candidates for obtaining an auditor certificate. In 2017, the largest number of candidates since 2013 – 319 – were admitted to the 1st stage of the qualification exam, of which 89.7% of candidates successfully passed the exam and passed the 1st stage, which corresponds to the general trend (Table 9).

Of the number admitted to the second stage of the qualifying exam, 74.9% passed the exam, which is the highest figure since 2013. However, the share of the initial number of candidates admitted to take the qualifying exam is the smallest for the studied period - 42.0%.

Thus, in 2017, there was an increase in interest in the development of auditing activities in Ukraine. At the same time, the quality of preparation for passing the qualification exam has decreased, which has affected the specific weight of candidates who have received an auditor's certificate.

At the same time, trust in auditors is decreasing in Ukraine. We share the opinion of K.S. Nazarova, who notes: "the systematized results give grounds for asserting that deficiencies in the current legislation of audit activity are present at all its levels and hinder the effective provision of

audit services [10, c. 57]". Due to the low level or absence of audit risk insurance and the imperfection of the system of external audit quality control, the imperfect mechanism of professional recognition of auditors, the demand for audit services decreases, the number of subjects of audit activity decreases, and the level of public trust in auditors. The auditor certification system is a guarantee of trust in the quality of audit services.

Table 9

Results of the qualifying exam for obtaining an auditor's certificate for 2013–2017

Year	1 stage			2 stage			
	candidates are admitted to take the exam	successfully passed the exam	% of the total number of candidates, %	candidates are admitted to take the exam	successfully passed the exam	% of the total number of candidates to 2 stage, %	% of the total number of candidates, %
2013	152	127	83,6	156	106	67,9	69,7
2014	18	16	88,9	16	14	87,5	77,8
2015	138	124	89,9	153	82	53,6	59,4
2016	125	109	87,2	143	70	49,0	56,0
2017	319	286	89,7	179	134	74,9	42,0

Source: calculated by the authors based on the Reports of the Audit Chamber of Ukraine [3]

It should be noted that since 2018, there has been a sharp reduction in the number of passed exams for obtaining an auditor's certificate, which is connected with the adoption of the Law of Ukraine "On the Audit of Financial Statements and Auditing" [2].

Therefore, it is important to improve the procedure for certifying auditors and the organization of quality control of audit services. Some positive changes in this direction in Ukraine were implemented in 2018 with the adoption of the Law of Ukraine "On the Audit of Financial Statements and Audit Activity" [2], which generally corresponds to the practices of countries that have implemented Directive 2006/43/EC of the European Parliament and of the Council on mandatory audit of annual reporting and consolidated reporting, and requirements established in Ukraine.

The conducted study of approaches to the certification of auditors in Ukraine and abroad led to the conclusion that the criteria used to determine the qualification of future auditors are similar. These are requirements for:

- 1) education of a candidate for a certificate;
- 2) the procedure for passing qualification exams and their number;
- 3) requirements for work experience of a candidate for obtaining an auditor's certificate;
- 4) validity period of the certificate.

Approaches to the certification of auditors in different countries of the world are systematized according to the specified criteria in Figure 7.

A comparative analysis of the auditor certification process in different countries demonstrates high requirements for auditor certification, which contributes to the high quality of audit services. Common features are requirements for higher education, examination procedures and practical training. Some differences are due to the conceptual vision of the role of audit in strengthening the country's economic position in the world. In particular, in some countries, not only practical experience in the field of accounting is required, but also internships in auditing firms, a good reputation and the absence of a criminal record.

As for Ukraine, the loyalty of requirements for the certification of auditors until 2018 attracts attention. Since October 2018, a differentiated approach to the certification procedure has been used in Ukraine.

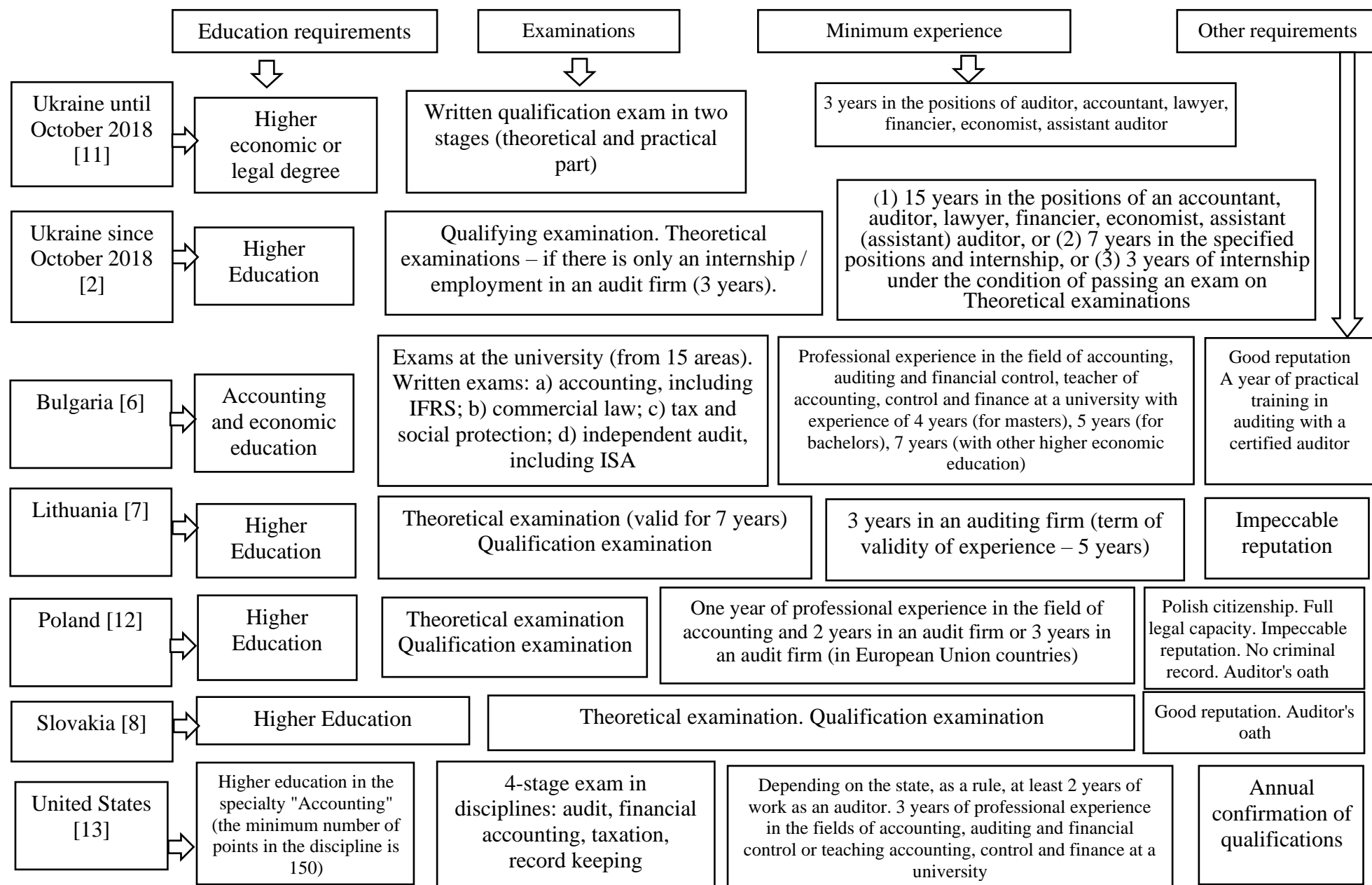


Fig. 7. Comparative characteristics of requirements for the certification of auditors in different countries of the world

According to the first option for obtaining an auditor's certificate in Ukraine, a person with a higher education and more than three years of work experience or internship in an auditing firm has this. She must pass two exams: Theoretical examination and Qualifying examination.

Theoretical examination includes the following components:

- 1) standards of professional ethics and professional independence;
- 2) international standards on auditing;
- 3) legal basis of auditing and methodology of the audit (professional skills);
- 4) risk management and internal control;
- 5) financial analysis;
- 6) management accounting;
- 7) international financial reporting standards;
- 8) accounting theory and legislative basis of accounting and financial reporting;
- 9) tax legislation and legislation on the unified social tax;
- 10) economic, civil and labour legislation;
- 11) corporate legislation and legislation on re-establishing debtor solvency or declaring it bankrupt;
- 12) information technologies and computer systems;
- 13) finance of the enterprises;
- 14) economics of the enterprise and statistics. [2].

According to the second scenario, a person who has a higher education, more than 15 years of activity in the field of accounting or law and has passed a Qualifying examination receives the right to receive an auditor's certificate.

The third option provides that the right to receive an auditor's certificate is acquired by a person who has a higher education, at least 7 years of professional activity, 3 years of internship in an auditing firm and has passed a qualification exam.

During 2020-2021, the auditor certification procedure has been improved.

Despite the fact that the law was adopted in 2018, the final formation and improvement of the regulatory framework for the certification of auditors took place only in recent years.

The main regulatory documents regarding the certification of auditors, which were adopted in 2020-2022, include:

- The procedure for passing exams for the certification of auditors (order of the Ministry of Finance of Ukraine dated 07.06.2020 No. 399);
- Procedure for enrolling theoretical knowledge (Order of the Ministry of Finance of Ukraine dated 01.06.2020 No. 286);
- Internship procedure (order of the Ministry of Finance of Ukraine dated 07.06.2020 No. 398);
- Procedure for continuous professional training of auditors (order of the Ministry of Finance of Ukraine dated 07.06.2020 No. 400).

In the same period, the Commission for certification and identification of business entities, which have the right to conduct continuous training of auditors and educational activities in the field of auditing, is created.

During 2020, the Attestation Commission recognized 14 legal entities and 3 professional organizations of auditors as meeting the requirements for conducting educational events. They were included in the List of persons who can conduct educational events.

At the end of 2020, a competition for the accreditation of exam preparation centers was announced, and in 2021, the Attestation Commission accredited 7 educational centers for the preparation and conduct of exams to obtain an auditor's certificate.

On September 24, 2021, the first qualification exam for the certification of auditors was held, in which 54 candidates took part. Only 11 candidates passed the exam, which is 20% of the total number.

Another exam was held a month later. 70 auditor candidates took part in it. Only 20 candidates successfully passed this exam, which is almost 29% of the total number [23]. Which once again confirms the low level of knowledge of applicants for obtaining an auditor's certificate.

Currently, the world is entering the era of the Fourth Industrial Revolution, which causes the penetration of information technologies into all spheres of society. This, in turn, is reflected in the methods used by auditors when providing audit services. At the same time, despite the intensifying competition and the positive impact of digital technologies on the quality and efficiency of audits, today in Ukraine there is still a low level of automation of auditing firms. In the conditions of digitization of society and the increase of data, this situation will lead to an increase in shortcomings during the audit and the number of fines applied by the controlling bodies to the subjects of audit activity. One of the ways to increase the quality of the audit while reducing the time for its implementation is the introduction of complex audit software, which has proven its relevance in the developed countries of the world.

The main goal of implementing software solutions in the activities of auditing companies should be:

- unification of the main audit processes;
performance of audit procedures in a single standardized way;
- automation of analytical tools;
- increasing the efficiency of data analysis;
- reducing the cost of the audit;
- approximation of the domestic audit practice to the uniform international best practice;
- improving the quality of the conducted audit;
- reducing manual work of the auditor;
- synchronization of the work of the entire audit team;
- saving and automatic analysis of all revealed information obtained in the audit process;
- work with a large amount of information;
- speeding up the work of the audit team.

The analysis of the audit services market of Ukraine for the years 2013–2020 showed a decline in the activity of domestic auditing entities. In the context of the country's integration into the world economy, it is urgent to restore public trust in the domestic audit, increase the value of the audit opinion, and improve the quality of audit services. Associate

membership in the EU forces you to take into account the updated provisions of the EU audit legislation, covering several areas: from the activities of the audit firm to restrictions on additional services that can be provided to businesses. A number of member states already enforce mandatory auditor rotation, and all EU member states are allowed to go beyond EU rules to impose stricter measures as they wish.

A comparative analysis of the process of auditor certification in different countries showed that since October 2018, the requirements for the certification of auditors in Ukraine meet the expectations of the world audit. The increase in requirements for certification brought Ukraine closer to the implementation of priorities for the development of audit activity: protection of the interests of users of financial and other economic information; satisfaction of the internal needs of the professional market of auditing services of Ukraine; ensuring recognition of the important role of the audit profession in society; improvement of regulatory activity in the field of audit. A differentiated approach to the procedure for obtaining an auditor's certificate will contribute to the deregulation of the industry, which will strengthen the quality of audit services, contribute to the creation of new markets in the field of audit activity, and strengthen the fight against manifestations of unfair competition in the market of audit services. The updated certification procedure confirms the value of audit activity, makes it impossible to "accidentally" receive it. This contributes to the return of public and global business trust to auditors in Ukraine.

In our opinion, the next step in the integration of the national audit into the world economy is to improve the content of the audit opinion in accordance with the information needs of various types of business, depending on the scale and complexity. We see the above as a perspective for further research.

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PROSPECTS FOR THE DEVELOPMENT OF FINANCE IN THE CONDITIONS OF EUROPEAN INTEGRATION OF UKRAINE

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