Juridisko un Sociālo Zinātņu

BALTIJAS ŽURNĀLS

Baltic Journal of Legal and Social Sciences

Juridisko un Sociālo Zinātņu BALTIJAS ŽURNĀLS

Rīga:
Baltijas Starptautiskā Akadēmija
ISSN 2592-8813

IZDEVNIECĪBA
BALTIJA
PUBLISHING

Baltic Journal of Legal and Social Sciences, 1, Special issue.
Riga, Latvia : "Baltija Publishing", 2024, 202 pages.

Baltic International Academy is a co-publisher of this periodical.
Printed and bound in Riga by LLC Publishing House "Baltija Publishing".
Journal is available: www.baltijapublishing.lv/index.php/bjlss
DOI: https://doi.org/10.30525/2592-8813

Type of publication from the application:
Journal-Digital-Online
Issue ISSN 2592-8813

Baltic Journal of Legal and Social Sciences is included in databases:
ERIH+
Index Copernicus

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INTRODUCTION

Dear Readers,

We offer to your attention a special issue of the Baltic Journal of Legal and Social Sciences, dedicated to modern problems and challenges of economics and finance, which we have united under the common ideology of FUTURE MONEY.

The annual special issue is a new tradition of Baltic International Academy, the aim of which is to present the ideas of honoured and young scientists, as well as of practicing professionals. Such a symbiosis of academic science, theoretical thought and practical experience lead to the serious and comprehensive discussion, to see the viability of theoretical calculations, and to give business practical solutions to problems.

Why we find this initiative to be so important? The world is changing rapidly. In fact, every 2–3 years there are events of unprecedented power and scale of impact on our daily lives. Unresolved global economic problems since the world crisis of 2007–2008, lack of answers to modern geopolitical challenges, lack of a coordinated strategy for solving a variety of social problems, united by the world community in the formulas of responsible development and ESG technologies, create situation when the scientific community communicate its position to the people more actively. Our journal is one of such platforms.

The Baltic Journal of Legal and Social Sciences follows the current trends to the fullest extent: a significant number of articles are devoted to digital finance, social economy and human problems in the world of finance.

The global pandemic COVID-19 has had a serious impact on the format of B2B and B2C interaction, pushed the transition of mankind to online technologies, remote work. The impact of digital technologies, year after year, is reshaping our lives and most significantly transforming the practice of banking, financial transactions and much more.

Banks and financial companies, as well as even central banks feel that the ground seem to be slipping from under their feet: the emergence of FinTech companies capable of carrying out financial transactions without banks and, moreover, without the involvement of a financial regulator. Platforms such as Facebook, Meta, etc. are already international in nature and their "population" reaches hundreds of millions of digital "citizens" who are ready to interact financially with each other.

It's but natural that the academic community shows its interest to Central Bank Digital Currency (CBDC), which is controlled by the state, and to the technologies of their development.

NFT and blockchaine technologies greatly simplify the operations of buying and selling assets in two worlds: real assets and virtual assets. And implementation of new technologies eliminate multiple layers of intermediaries and controllers. Fast, cheap, absolutely transparent and controlled: this is the formula that will always satisfy the client.

Just imagine what a challenge it is not only to various unscrupulous businessmen, but also to the entire world bureaucracy. Sceptics, however, argue that no one will ever be able to defeat this dragon of bureaucracy. Another question, how will the most "peace-loving" states of the planet, uncontrolled by the civil society, make payments to any private military companies under the comprehensive implementation of blockchaine? They will be the first to stand in the way of the introduction of these technologies.

We should not expect a seamless implementation, but the fact remains that these technologies are penetrating our lives step by step, changing the established order and way of life.

At the same time, questions about the place of the human being in the modern world are becoming more and more loud. Scientists have even chosen the term Phygital - a combination of man and his digital environment. As it turns out, this problem is more serious and multi-faceted, since in question is not only the place of man, in the world, but also about the place of the human in man himself.

The consumerist attitude to the planet and its ecology; the rapid growth of inequality and the gap between the poor and the rich; the geopolitical catastrophe of 2022, a war in the centre of Europe unimaginable to any sane person just a short time ago; the barbarians of the 21st century; the list of problems created by man is endless. Our actions have their consequences. And the price that humanity will pay is yet to be assessed.

The world pandemic has led to significant imbalances in the macroeconomics of leading countries and associations, so the volume of ECB and Fed emission, aimed at social programs and overcoming the consequences of the pandemic for a year and a half, is equivalent to the amount of money printed in the course of 10 previous years. As a consequence, inflation and volatility of economies. The volume of the U.S. government debt has exceeded the historical maximum of 33 trillion U.S. dollars and the country's stability rating has been changed downward. All this makes the world's leading economists and scientists talk about a protracted crisis.

Obviously, the search for new solutions, development and implementation of innovations that will allow to find harmony in the technologies of interaction between financial institutions and humans, ways of responsible business, to solve the issues of control and reduction of human consumption (including through those which introduce ESG technologies) is not only the task of scientists. The state and practical business should be active participants in the search and scientific dialog. The role of the new generation of citizens of the planet, modern students who took an active part in the preparation of articles of the journal is very important.

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DOI https://doi.org/10.30525/2592-8813-2024-spec-1

PARADOXES OF MONETARY POLICY PROVIDED BY THE NATIONAL BANK OF UKRAINE (OR, FOLLOWING HONORE DE BALZAC "SHINE AND POVERTY OF COURTESANS")

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Abstract. The qualitative and quantitative characteristics of the monetary policy of the National Bank of Ukraine (NBU) have been analyzed. It has been proved that this policy, as a part of general regulatory policy of the state, is a set of measures in the area of money's circulation to be implemented in order to ensure the stability of the monetary and banking system of Ukraine.

The crisis in the country's economy, provoked by the war, became a serious challenge for the NBU that requires improvement of the state monetary policy and searching for effective mechanisms needed to be implemented.

In this situation, the NBU has to ensure not only the achievement of the national financial system relatively high level of stability, but also move in its regulatory banking policy, which main purpose is consisting now in supporting the value of money, to a comprehensive assessment of the money's functions in general.

Key words: approaches, management, monetary and banking system of Ukraine, tools, monetary policy, National Bank, stability of the methodology.

Introduction. The policy of monetary regulation of Ukraine, as an integral part of the economic policy of any state, is designed, in accordance with its main functions, to ensure a high level of price stability, creating on this basis the necessary conditions for the formation of a model with high and stable levels of economic development of optimal employment.

Taking this into account, the policy of regulating the money supply and monetary relations should constantly be in the center of attention not only of academic economists, but also of functionaries of central banks.

It should be emphasized that in the economic literature there are a number of unresolved problems concerning the interaction of various components of monetary and monetary policy in Ukraine, among which a special place is occupied by inflation targeting procedures and determining the impact of monetary and monetary policy on economic growth and maintenance unemployment rate at a level close to optimal.

In this regard, scientific research into the current situation in the development and implementation of monetary and monetary policy in Ukraine should be considered very relevant.

The authors believe that the National Bank of Ukraine in its activities should proceed from the priority of achieving and maintaining price stability in society. In turn, the authors propose to define price stability as maintaining the purchasing power of the national currency by maintaining low and stable inflation rates.

In order to achieve and maintain price stability, which, in turn, the authors propose to measure in the medium term through the consumer price index, the National Bank of Ukraine must apply a special inflation targeting regime. The essence of this regime is the public announcement of the maximum level of growth in the value of the consumer price index and the obligations of the National Bank to achieve these goals in the planning horizon under consideration.

As strategic tools for maintaining price stability, the National Bank of Ukraine proposes to use existing monetary instruments, the main of which, as is known, are the interest rate and the discount rate. At the same time, the operational goal of the National Bank's monetary policy is to maintain interbank rates in the national monetary unit at a level close to the key rate. As is known, an indicator of the level of interbank interest rates in national currency is the Ukrainian index of interbank rates on loans and deposits in national currency (IIS).

Having carried out an appropriate analysis, the authors dare to assert that as of today, the Ukrainian banking system has excess liquidity. At the same time, the authors emphasize, the analysis of emerging trends allows us to draw an extremely important conclusion that in the near future, the Ukrainian banking system will face a serious liquidity shortage.

In such a situation, in order to more flexibly respond to changes in the liquidity of the Ukrainian banking system, it is proposed to make changes regulating the flexibility of the monetary policy structure. Such modernization, according to the authors, will contribute to the effective implementation of the operational goals of the National Bank even in conditions of unstable liquidity.

The article provides an in-depth analysis of modern economic literature devoted to the development and implementation of monetary policy in developing countries, in particular in Ukraine. One of the key issues that the authors paid attention to was assessing the effectiveness of monetary policy.

This literature review allows us to draw an important conclusion that the activities of central banks in developing countries often do not correspond to existing economic models. And, most importantly, it does not take into account the influence of a large number of factors that determine the effectiveness of monetary and monetary policy in these countries.

Among these factors, the authors emphasize, special attention should be paid to the profitability of central banks, the level of independence of these banks in their operations, as well as the magnitude of lags, regulatory stringency and existing imbalances.

The empirical analysis carried out by the authors in this article demonstrates that even if bank rates are set at low levels, as a result of negligible inflation and low rates, they can be risk factors, exposing financial stability to the risk of recession and preventing the restoration of public confidence in the banking system itself.

This article offers an in-depth analysis of the literature on the interaction of monetary and prudential policies and, very importantly, issues of their coordination. At the same time, it is proved that monetary policy has an ambiguous impact on the profitability of banks, and then on their risk behavior, and also that despite the fact that monetary and prudential policies have different goals, they inevitably interact, creating problems faced by the leadership and management of central banks.

Based on this conceptual approach, the authors argue that monetary policy alone is not sufficient to maintain macroeconomic and financial stability. This policy and all its instruments must be coordinated with prudential policy.

The purpose of the article is to provide a comprehensive point pf view regarding current state of economic studies in this area, reflect the results of the scientific investigations curried out by the authors in this specific field and to identify directions for future scientific research.

Literature review and basic results of previous empirical studies. Since the end of the last century, there has been a serious theoretical discussion in the scientific literature about the interaction of central banks and governments, as well as about the coordination between monetary and fiscal authorities.

It is noted that central banks are more focused on limiting inflation, while governments are primarily concerned with the problems of economic growth, the level of public debt and its share in GDP. At the same time, the effectiveness of control over both variables depends on the level and effectiveness of coordination of actions of governments and central banks [32].

Unfortunately, this coordination does not always lead to the desired results.

The reason for this should be sought in the relationship between different government bodies in relation to each other. For example, Silva K.G. and Vieira F.V. [31] argued that when monetary policy dominates fiscal policy, the dominant role is played by those authorities whose responsibilities include controlling inflation and, accordingly, the volume of money emission. However, if fiscal policy dominates monetary policy, then the relevant authorities responsible for implementing this policy lose some of their influence in terms of regulating the level of inflation.

Developing this conceptual approach, scientists S. Ayyagari and M. Gertler introduced a distinction between Ricardian and non-Ricardian economic models that determine the economic policies of governments [2]. In the first conceptual model, the authority responsible for monetary policy determines the volume of the money supply and, accordingly, the price level. Thus, the government as a whole must achieve a budget surplus that can guarantee repayment of the original debt amount and, as a result, financial solvency.

Following the scientific position of Leeper, E. and Davig. Thus, government fiscal policy can be either “active” or “passive”. The level of activity of this policy depends on how intensely it influences the dynamics of the volume of public debt [23]. The “active body” of power avoids large amounts of this debt by defectively setting its maximum volume. The policy of the “passive body” depends on the current state of public debt. And it is aimed at eliminating negative consequences if this volume is extremely large and, as a result, puts the economy into a state of shock.

Economists Taylor and M. Haga assess the policy response to the so-called “Taylor rule”, which was in place to control inflation in the United States in the early 1990s. These scientists are joined by representatives of another school – Ghatak and Moore [16], which describe changes in the instruments that regulate inflation growth and its relationship with the dynamics of real GDP. The main purpose of these changes is to enable governments to succeed in limiting the price level and the gap with GDP dynamics.

Analyzing the results of studies in the field of fiscal policy and its sustainability, the authors conclude that they mainly analyzed two main indicators, namely, the size of the debt and the primary balance. For example, the economist Bona H. [8] proved that the US primary budget surplus is an increasing function that positively describes the ratio of public debt to GDP.

Researchers Gali J. and Perotti R. [14] analyzed how the Maastricht Treaty and the SGP changed fiscal policy in the EMU countries. Moreover, it was proven that EU governments increased their primary budget surpluses after increasing the outstanding amount of public debt. For this purpose, apparently, primary budget surpluses are used.

Polish economists Brzozowski M. and Siwiska-Gorzelak J. [9] assess the impact of the government's fiscal behavior on the level of volatility of the state's tax and budget policy. In particular, these authors find that fiscal balance and debt constraints have different effects on fiscal volatility. Thus, fiscal balance restrictions help increase volatility, while debt restrictions help reduce it.

All these results prove that a balanced tax and budget model is a factor in stabilizing monetary policy.

Analyzing monetary policy, authors note that the result of its activities is, first of all, interest rates of central banks.

This conclusion can be drawn, in particular, by analyzing the scientific position of Altavilla K., who assesses how the European Central Bank (ECB) controls the dynamics of interest rates when changing the volume of GDP, inflation and the exchange rate [3]. The scientist concluded that the ECB's reaction is more reasonable and effective if it begins to use a "lagged interest rate" and projected changes in the inflation rate.

Economists Reinhart K. and Rogoff K. [29] developed a panel reaction estimation model based on the already mentioned Taylor rule to analyze the quality and effectiveness of European monetary policy. As a result of applying this model, the authors find a significant change in interest rates only in cases of regional, that is, European inflation.

Financiers W. Clausen, B. Hayo and M. Husche also examine the short- and medium-term implications of asymmetric European monetary policy for Germany, Italy and France. Moreover, their research results lead to the conclusion that an uncoordinated change in monetary policy applied to the eight major EMU countries could lead to an asymmetric response due to differences in national economic structures [10, 19].

Latin American economists Andrade J.P. and Pires study the effectiveness of Brazilian monetary policy during the Real Plan. The results of their study provide new insights into how monetary policy might operate in the case of indexed bonds [4]. The authors argue that the wealth spillover effect acts as an important transmission channel for monetary policy, although a high proportion of indexed bonds may offset this role.

In order to study the interaction between monetary and fiscal policy, Beetsma R. and Jensen H. analyze the interaction between the components of these blocks, proving that a monetary union, using the concept of "sticky prices", simultaneously received the cumulative effect of several fiscal rules [6].

Financiers Leith K. and von Thadden L. study the interaction between different components of the financial policies of central banks within the framework of the already mentioned non-Ricardian model. [24]. As a result, the authors conclude that the volume of public debt plays an important role in the policy-making process. Moreover, without limiting the maximum level of this variable, it is impossible to determine the effectiveness of both fiscal and monetary policy rules in ensuring the dynamic level of economic equilibrium.

Portuguese professor-economist Sergio Lagoa, University of Lisbon, [22] assesses the reasons for differences in inflation rates between eurozone countries in the period 1998–2008 and shows that it is the levels of exchange rates, and not real indicators of labor costs, that are the main factor determining the dynamics of the inflation rate. In addition, based on the results of his research, the author also offers an interesting discussion regarding the interaction of monetary and fiscal policies and their level of effectiveness during the financial crisis and subsequent periods.

Ukrainian statistician I. Mantsurov [25, 26] considers it necessary to recommend that the National Bank of Ukraine introduce the following system of measures during the war. 1. All areas of the

NBU's work should be aimed at maintaining the stability of the national economy. 2. The regulatory policy system of the National Bank of Ukraine, including monetary policy, should be aimed at restoring lending to the economy, primarily its real sector. 3. Contribute to the further development of the financial services market.4. Increase the level of cyber protection of the financial sector. 5. Improve partnership and interaction with stakeholders of the National Bank and commercial banks.

American macroeconomists Leeper E. and Davis T. assess the effectiveness of the financial policies of the United States based on the use of Markov models [23]. The results of their paper highlight the fact that assessing the impact of fiscal stimulus is impossible without an aggregate study of monetary and fiscal policy.

American forecasters Bianchi F. and Ilut K., the John Hopkins University, also applied Markov models to the study of the US economy as a means of assessing changes in the interaction of monetary and fiscal policies. A "passive" monetary policy was proven during the 1960-1970s of the last century and a transition to a more "active" policy was demonstrated starting from the mid-1980s [7].

A similar approach was proposed by Portuguese professors A. Afonso and P. Toffano, University of Lisbon, who found that the UK had a more "active" fiscal model, while Germany's fiscal regimes were generally less active. As a result, a higher level of financial stability has been achieved in Germany. The same result was obtained in Italy, where, on the eve of the creation of the EMU, more passive fiscal behavior was observed [1].

Providing new insight into the highly relevant topic of the interaction of monetary and fiscal policies, Finish macroeconomist Haga M., Helsinki University, finds an inverse relationship between the level of dependence of central banks and the dynamics of budget cycles [18]. In other words, more dependent central banks simultaneously play a more passive monetary role in the face of fiscal policies pursued by national governments.

Methodology and data used. The study uses the annual time series data of annual bank rate of the National Bank of Ukraine and Consumer Price Index, 1992–2023. The variables used in the analysis were obtained from several official sources of information, particularly form Ministry of Economy of Ukraine [39], State Statistical Service of Ukraine [36], National Bank of Ukraine (NBU) [35], World Bank [40], European Central Bank (ECB) [41], Eurostat [42] as well.

Common types of research methodology include quantitative and qualitative research methods, mixed-method research, experimental and case study research have been used.

Results and discussion. According to the basic principles of the scientific research, it is necessary to start out with some classifications and definitions.

According to the scientific point of view of the authors, the financial, monetary and tax policies of the state are a system of regulatory instruments and procedures that are used by the country's central bank to control the volume of money supply, interest rates and stimulate economic growth. As a result of the use of such instruments, strategic decisions are made regarding the revision of interest rates, increasing or decreasing the volume of the country's gold and foreign exchange reserves.

In accordance with its powers, the National Bank of Ukraine (NBU), based on these strategic decisions, ensures price stability both through the use of an inflation targeting regime and through the use of a floating hryvnia exchange rate.

Thus, the NBU's monetary policy relies on the key rate as the main regulatory instrument, with the goal of maintaining price stability, which means low and stable inflation.

There are certain rules and procedures that are developed primarily for the implementation of monetary control. From a conceptual point of view, when we talk about banking control, we have to keep in mind regulation and supervision. This is precisely what is required by the so-called prudential rules, which regulate the safety, reliability and stability of the functioning of controlled institutions.

The main goal of these rules is to ensure that the banking sector and its institutions fulfill their functions in the economy. At the same time, all these institutions must remain solvent and sufficiently liquid.

This goal is achieved through the process of inspections of supervised institutions, when groups of inspection bodies annually visit and inspect commercial banks. The audit is carried out quite thoroughly and very detailed reports are compiled. Based on these reports, decisions are made and sometimes orders are made to these institutions to change their practices.

The bank (discount) rate is the key rate of the NBU, which is the main indicator of the effectiveness of monetary policy and a benchmark for the cost of attracted and placed funds for the state, commercial banks and other participants in the country's money market. .

The key rate is set on the basis of a comprehensive analysis and forecast of macroeconomic, monetary and financial events prepared by the NBU.

The decision on the key rate is approved by the NBU Board at a meeting on monetary policy based on proposals from the Department of Monetary Policy and Economic Analysis after discussion at a meeting of the Monetary Policy Committee and international partners. The NBU publishes the key rate on the official website of the NBU.

After each monetary policy briefing where a new key rate is announced, the media informs market participants about what to expect from lending rates.

Whenever measures to revive lending are discussed, a decision is made on the value of the NBU key rate. This is how the NBU directly influences the cost of loans and deposits through the discount rate.

The National Bank of Ukraine's priority is to ensure price stability, i.e. low and stable inflation. The key interest rate, also known as the discount rate, is the main instrument for this purpose. By setting it at a certain level, the central bank provides commercial banks with a benchmark for the cost of short-term resources. Based on this benchmark, banks then set the cost of deposits and loans for their customers.

The changes of NBU discount rate for the period of 1992-2023 are presented in the Table 1.

Table 1

Average annual discount rate of the national bank of Ukraine, %, 1992–2023

Year	Bank rate, %	Year	Bank rate, %	Year	Bank rate, %	Year	Bank rate, %
1992	55,0	2000	30,8	2008	11,0	2016	17,3
1993	170,0	2001	18,3	2009	10,6	2017	11,8
1994	211,4	2002	9,1	2010	8,6	2018	17,3
1995	114,4	2003	8,2	2011	7,5	2019	16,7
1996	75,1	2004	9,5	2012	3,3	2020	7,4
1997	24,0	2005	8,5	2013	7,3	2021	7,7
1998	53,8	2006	8,0	2014	26,6	2022	20,7
1999	50,7	2007	30,8	2015	11,0	2023	23,7

Source: National Bank of Ukraine [35].

As evidenced by the data in Table 1, for 30 years the NBU, focusing on the global situation on the world economy and the state of the national economy, has significantly changed the value of the discount rate.

The minimum annual average was recorded in 2013 (3.3%), and the maximum in 1994 (221.4%).

More visible the corresponding data are presented in the Graph 1.

Special attention should be given not so much to the isolated change in the discount rate but rather to the results of a qualitative analysis of these changes in relation to other indicators of bank activities and the overall economic performance.

Last year, the National Bank of Ukraine (NBU) sharply increased the discount rate from 10% to 25%. Consequently, interest rates on deposit certificates also increased. In 2022, commercial banks started receiving an interest rate of 23% on them (NBU's discount rate minus 2%).

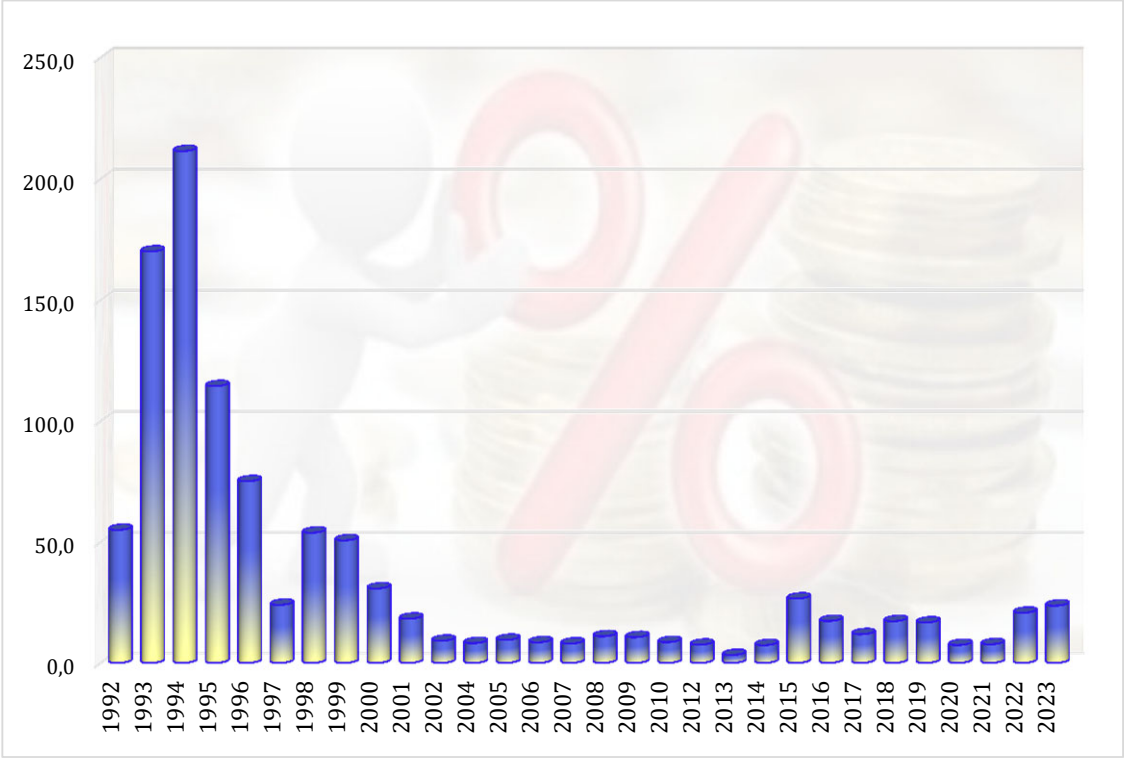

Fig. 1. Dynamics of the annual discount rate of the National Bank of Ukraine, %, 1992–2023

Source: National Bank of Ukraine [35].

In 2023, the NBU changed this model. Specifically, deposit certificates are now issued in two types.

The first type is overnight deposit certificates with a maturity of one day at the discount rate minus 5%. This means that banks receive 20%. The fact that these funds are "overnight" (deposited overnight at the NBU) should not mislead you regarding their short-term nature: banks can reinvest in these financial instruments daily, effectively turning "overnight" deposit certificates into "annual".

This is why the volume of bank investments in NBU deposit certificates increased in 2022 from 95 billion UAH at the beginning of the year to 456 billion UAH at the end, or nearly 5 times.

The authors emphasize that this money (almost half a trillion UAH, which is more than 10 billion USD) is liquidity withdrawn from the economy.

Additionally, the interest accrued on them (over 40 billion UAH last year) is the central bank's net issuance, carried out in the interests of a group of commercial banks. In other words, to pay interest on NBU deposit certificates, the NBU effectively "printed" 40 billion UAH.

There is also an interesting aspect in the context of the NBU's income formation. According to current legislation, this income is annually transferred to the state budget.

It is important to understand how this income is formed. Using the classical scheme: income minus expenses plus changes in reserves for assets. The NBU's expenses include payments for deposit certificates, while its income includes interest on refinancing loans, income from securities, and positive exchange rate differences from currency market operations.

By the way, the refinancing rate, i.e., the cost of loans provided by the NBU to banks, is also tied to the discount rate plus 2%, which is 27% annually. Banks practically do not use this channel to replenish their liquidity as the cost of resources is too high.

Essentially, due to the high profitability of NBU deposit certificates, the NBU operates as a “vacuum cleaner”, withdrawing “excess” money from the economy.

At the same time, by increasing the costs of servicing deposit certificates, the National Bank effectively reduces the amount of profit it has to transfer to the Government in the form of interest on these certificates. In other words, the “seigniorage”, namely the profit from printing money, is distributed not in favor of the society but in favor of a group of banks.

Starting from April 2023, for the convenience of banks, the NBU introduced another type of the mentioned securities: issuing deposit certificates for 90 days through tenders at the discount rate, which is 25%. This is the second type of deposit certificates.

This financial “iceberg” is only available to banks that accumulate certain amounts of individual deposits in their portfolios.

At present, the authors would like to draw the readers' attention to a very interesting and important circumstance. According to our calculations, an average of 320 billion UAH is held in “overnight” deposit certificates, bringing banks 175 million UAH in profit per day. In three-month certificates, the average is 160 billion UAH, which means an additional 110 million UAH in banks' daily profit.

Thus, in total, through deposit certificates using the excessively high NBU discount rate, 480 billion UAH of banking liquidity, which has been withdrawn from the economy, is “locked". This process costs the state 270 million UAH per day.

Attempting to justify their actions in a non-scientific manner, as mentioned above, the NBU explains this withdrawal of liquidity from the national economy as a measure to combat inflation. This “scientific” basis requires a deeper analysis.

According to official NBU statistics, in 2022, it purchased military bonds from the Ministry of Finance for more than 400 billion UAH (as part of so-called quasi-fiscal dominance). These funds entered the economy through budgetary financing and partially settled in banks. However, with the help of deposit certificates, 480 billion UAH has been withdrawn from the money circulation, which is 80 billion UAH more.

In other words, during the war and an unprecedented economic crisis, the NBU has a positive balance of operations in the liquidity market. Undoubtedly, this phenomenon is “unique” in modern, and not only modern, economic theory and historical practice. At least, the analysis shows that during the 20th century, in all countries that participated in wars in one way or another, the central bank became the lender of last resort for the market and the government.

But, as they say, the story doesn't end here. If we have mentioned government bonds, let's consider the scheme involving deposit certificates more broadly. So, the National Bank of Ukraine (NBU) purchases government bonds from the Ministry of Finance, and it does so conceptually correctly because during a war, it's necessary to finance the country's budget deficit. It's better to do this from one's own resources without resorting to external borrowing.

However, the yield rate on these bonds, according to NBU procedures, should be tied to the discount rate (25% in 2022 and 20% in the current year) that the National Bank of Ukraine unilaterally determines. In other words, bondholders set the yield level for the issuer, not the other way around.

Therefore, the Ministry of Finance accrues a yield of 25% on the portfolio of government bonds owned by the NBU (UAH 400 billion), and the National Bank accrues 20–25% on the portfolio of deposit certificates of commercial banks (UAH 480 billion). The value of these portfolios in NBU's assets (bonds) and liabilities (deposit certificates) does not differ significantly (400 billion versus 480 billion UAH).

This balanced approach results in the yield on assets/liabilities of the NBU: 25% is accrued on bonds in assets, and an average of 22% is accrued on deposit certificates in liabilities.

Thus, the authors draw an important conceptual conclusion that during a war, the National Bank becomes a transit node for transferring profits from the budget, which has a significant deficit, to the

banking system. The high yield on government bonds means that the Ministry of Finance accrues an annual yield of UAH 100 billion on them, which is a quarter of the principal, further increasing the already high government debt burden, emphasizing once again that it is deficit-driven.

Then, these funds flow into the commercial banking sector (including foreign and state-owned banks) through operations with the placement of NBU deposit certificates: UAH 40 billion in 2022 (when the discount rate of 25% was applied only from June to December) and already UAH 45 billion for the first five months of 2023. Of course, the actual accrual of income on government bonds and deposit certificates does not coincide in time. However, the main thing is that the balance is maintained between assets and liabilities.

Under such conditions, lending to the real sector of the economy has completely collapsed because there are virtually no business entities in the country (except for trade) that can take out loans at interest rates of 30% and above. Thus, actual lending to enterprises has now been reduced to the volume of programs for state compensation of interest rates on loans at 5–7–9%.

In this way, the state pays twice—first for government bonds and then by compensating business loan interest rates. The center of gravity of monetary policy is thus shifted from the financial system to the state budget and taxpayers.

We'll leave the impact of tight monetary policy on reducing inflation in parentheses. This is a topic for a separate article. Let's just note that inflation in Ukraine is predominantly non-monetary in nature and is not caused by an increase in household incomes, so it cannot be "cured" by raising the discount rate.

Furthermore, with inflation at 16%, we currently have a real positive interest rate (base rate minus inflation) of 9%, which is evidence of an overly tight monetary policy (in most countries, negative real interest rates are applied to overcome crises).

At the same time, businesses in Ukraine cannot thrive without credit support. For instance, a survey of business expectations in the first quarter of 2023 conducted by the NBU revealed that the proportion of companies planning to take bank loans stands at 35.4% (compared to 35.0% in the fourth quarter of 2022). As before, companies planning to attract loans prefer loans in the national currency – 79.7% (compared to 84.9% in the fourth quarter of 2022).

The most significant obstacle to obtaining new loans remains high interest rates on loans (48.1% of responses). There is an increasing impact of the "too complicated document processing procedure" factor (an increase of 3.0 percentage points to 23.4%).

Among the areas of lending are state orders, including in the defense industry, business relocation and recovery after de-occupation, adaptation to wartime conditions, and the energy crisis.

The current monetary transmission has introduced significant market distortions into the determination of loan rates.

If the average corporate lending rate is 18% (due to state subsidies to compensate for interest rates), in the household sector, it is already 36% (where such state programs to compensate interest rates are almost non-existent, except for mortgages). This means the gap is twice as large, and it's primarily borne by the population. Under the current monetary transmission, it's not only the state budget but also ordinary Ukrainians who are paying.

By the way, the volume of loans is decreasing. If as of 02.01.2022, the total loan portfolio was UAH 788 billion, as of 05.01.2023, it's already UAH 645 billion. Reductions have occurred across all portfolios: loans to legal entities have decreased from UAH 582 billion to UAH 514 billion, and to individuals, it has decreased from UAH 206 billion to UAH 131 billion.

And this is against the backdrop of the hryvnia devaluation from 25 to 36.6 UAH/USD and 25% inflation last year: devaluation increased the nominal value of foreign currency loans in hryvnia equivalent, while inflation led to an increase in the nominal value of new loans.

In other words, the 25% discount rate model has effectively led to a complete rupture of the credit cycle and the exclusion of the credit lever from the list of drivers aimed at crisis amortization.

Part of the money that the NBU "prints" for banks goes towards compensating problem loans: the volume of reserves for overdue debt of legal entities in banks has increased during the war from UAH 260 billion to UAH 271 billion, and for overdue debt of individuals – from UAH 43 billion to UAH 74 billion.

Considering the slight deterioration in the legal entities' portfolio, it would be much cheaper for the state to introduce a moratorium on consumer loan repayments during the war, compensating banks for lost liquidity through long-term refinancing at the term of such loans. However, this requires having a discount rate not exceeding 10%, so that the refinancing rate for banks is 12%, not 27% as it is now.

In the context of this topic, let's also consider two more myths that circulate in the context of the deposit certificate scheme. To do this, it's sufficient to analyze the data in Table 2, which indicate that the net income of commercial banks has grown rapidly this year, increasing by nearly 54 billion hryvnias in the first five months of the year. If the policy rate were lowered to 10%, the authors do not

Table 2

Revenues and expenditures of Ukrainian banks (UAH million)

Showcases	January 2023	January-February 2023	January-March 2023	January-April 2023	January-May 2023
INCOME	38 650	65 825	103 984	136 390	171 743
Interest income	23 765	44 436	68 138	91 349	***116 144***
Commission income	8 307	15 582	23 511	30 960	39 211
The result of the re-evaluation and operation of the purchase and sale	5 932	4 649	10 136	11 190	11 754
Other operating incomes	506	883	1 536	1 940	3 039
income	76	141	422	501	993
Return of write-offs of assets	64	133	242	451	602
Costs	23 956	44 347	69 928	92 393	118 154
Interest rates	7 245	14 000	21 932	29 942	***38 591***
Commission costs	3 895	7 487	10 511	14 004	18 398
Other Operating Costs	1 075	2 445	4 278	5 890	7 558
General administrative expenses	6 417	13 202	20 925	28 295	35 500
Others costs	561	1 182	1 755	2 386	3 071
Deduction to reserves	2 488	2 517	3 805	3 359	4 680
Tax on the butt	2 275	3 514	6 723	8 517	10 355
Net profit (loss)	14 694	21 478	34 056	43 997	**53 589**

Source: National Bank of Ukraine [35].

rule out that commercial banks would find that the income from NBU deposit certificates no longer covers their cost base.

However, more interesting conclusions can be drawn from the analysis of the ratio of interest income of banks, including those paid by the state (for domestic government bonds – by the Ministry of Finance, and for deposit certificates – by the NBU), which amounted to UAH 116 billion for the first five months of the current year, while interest expenses were only UAH 38.6 billion or 33% of interest income.

In addition, banks earned a significant commission of UAH 39 billion against low commission expenses of UAH 18 billion (while insisting that customers do not deposit "worn" or old dollar bills, demanding a 10–30% commission).

By the way, banks incur huge administrative expenses – UAH 35.5 billion, financed through NBU's printing press. In contrast, provisions are only UAH 4.6 billion. This last figure is essential: during the same period, banks received UAH 45 billion in profit from deposit certificates (excluding profit from domestic government bonds), while provisions for doubtful loans amounted to only UAH 4.6 billion.

Another important conclusion: for every hryvnia of banking interest expense, there are three hryvnias of interest income, and commission income minus expenses covers 60% of bank administrative expenses.

Provisions are insignificant and do not require additional financial stimulus from the state. As a result, amid a non-functioning economy, banks recorded a net profit of UAH 54 billion in January-May 2023, which was generated through the 'printing of profit' by the NBU in the amount of UAH 45 billion!

So, if we subtract the funds received by banks through deposit certificates from their income, their profitability would balance at zero. In fact, alongside the Ministry of Finance, the NBU has become perhaps the only source of stable income for banks.

Through income from NBU deposit certificates, banks can increase their portfolio of deposits from the public. Banks indeed hold about UAH 2 trillion of client funds, but in the context of time deposits, we are only interested in the deposits of individuals.

Table 3

Amounts of deposits of individuals in commercial banks of Ukraine, UAH, billion

Account type	As of 1.02.2022	As of 1.02.2023	As of 01.05.2023
Accounts on demand	399	591	587
Share of funds on demand	56%	64%	62%
Deposit accounts	315	338	360

Source: NBU [35], authors' calculations.

According to the data in Table 3, Ukrainian banks significantly increased the amount of demand deposits from UAH 399 billion to UAH 587 billion, on which they practically do not accrue interest (except for the salaries of military personnel, sometimes 3–5%).

These are the funds that the population simply keeps in banks as a storage for current card transactions. This is a behavioral pattern of individuals during the war, to avoid carrying cash around the country. Additionally, these cards are used to transfer funds for the maintenance of Ukrainian refugees abroad.

It should be noted that these funds would have been in banks even with a zero-interest rate. The owners of these funds prioritize the security of preservation and the convenience of transactions and card-to-card transfers over interest income. The share of funds available for demand increased during the war (from 56% to 62%), despite the increase in the policy rate from 10% to 25%.

The deposit accounts of the population increased from UAH 315 billion to UAH 360 billion, an increase of only UAH 45 billion. Moreover, the share of deposits even decreased, from 44% to 38%, a decrease of 6%.

Therefore, the authors conclude that, effectively, to attract one hryvnia in time deposits, the NBU paid banks two hryvnias in income for deposit certificates: the amount of public deposits increased by UAH 45 billion during the war period, while the NBU paid banks UAH 85 billion in profit for deposit certificates.

At the same time, banks are not in a hurry to share their income from NBU deposit certificates, which are earned precisely from the funds of individuals. For example, the weighted average interest rate on deposits of the population during the war increased from 8% to 13.8%, while the rate on deposit certificates increased from 8% to 25%.

In total, the combined amount of funds from the population in banks during the war increased to UAH 947 billion, an increase of 36%. However, this increase, often cited by supporters of the NBU's high-interest rate policy, was achieved either due to the growth of demand deposits, or due to an increase in foreign currency deposits by 9%, which means either through inflation, devaluation, or an increase in the defense sector's payroll to UAH 750 billion per year, or thanks to the behavioral model of the population during the war.

Thus, the authors make another important conclusion. None of the factors listed above are related to the NBU's strict monetary policy and the need to "print" profits for banks.

Of course, the state is interested in the stability of the banking system; no one wants a repeat of the liquidation of nearly 100 commercial banks that occurred in 2014–2015.

However, the state has other tools for this purpose: a group of state-owned banks that control over 50% of systemic assets, an increase in the reserve requirement on the correspondent account with the NBU for funds attracted from the public by banks to 50% and higher. During wartime, banking institutions are transformed into payment and cash centers, and the safekeeping of public funds is entrusted to the National Bank.

It is quite understandable that the current policy of the NBU essentially indulges commercial banks, which receive 85 billion UAH in income during the war practically out of thin air, at the expense of the targeted emission of the central bank (which, by the way, directly impacts inflation dynamics).

In such conditions, banks are not interested in lending or building quality loan portfolios (especially government institutions), as any losses on their balance sheets will be covered by the NBU.

The profit from the emission, or seigniorage, is not transferred to the government in the interest of the wartime economy, but to a group of commercial banks, concurrently forming a positive balance for themselves in liquidity market operations, which is unacceptable during such a deep economic crisis.

After all, many sectors of the economy suffered during the war: transportation, energy, but no one receives "printed" hryvnias from the NBU except for banks.

By the way, the 85 billion UAH transferred by the state to the banking system is almost equivalent to the annual funds allocated for increasing the salaries of military personnel to 30,000 UAH.

Of course, the practice of paying interest to financial institutions for their deposits with the central bank exists in other countries as well. However, such hyperbolic forms of this scheme have only developed in Ukraine.

Resuming all mentioned above, the authors came to conclusion that the National Bank of Ukraine's priority is to ensure price stability, i.e. low and stable inflation. The key interest rate, also known as the discount rate, is the main instrument for this purpose. By setting it at a certain level, the central bank provides commercial banks with a benchmark for the cost of short-term resources. Based on this benchmark, banks then set the cost of deposits and loans for their customers.

Since May 2019, due to moderate inflationary risks, the NBU has been gradually reducing the key policy rate, and today it is set at 6%. Accordingly, banks began to reduce deposit and loan rates. While in July last year the average interest rate on loans to businesses was 18%, in July this year the cost of borrowing for them fell to less than 10%. The cost of mortgage loans was also falling in response to the NBU's key policy rate cut. *So, the key policy rate does affect lending rates.*

In addition to the cost of resources for the bank, the level of risk on loans affects interest rates. *Credit risk – the risk of non-repayment of funds – is mainly taken into account*. Therefore, the cost of a loan will be different for different groups of borrowers, depending on the likelihood of their repayment.

For example, interest rates on loans to subsidiaries of international corporations, which, in addition to their strong financial position, also have the support of their parent companies, decreased the most – to 7% in August 2020. Since the risks of lending to such companies are insignificant for banks, they can set interest rates close to the discount rate. Of course, for small companies that sometimes do not have transparent financial statements or are more vulnerable to unfavorable economic conditions, the rates will be higher, and sometimes the bank may refuse to issue a loan if it considers the risk too high.

The term of the loan is also important, as by providing funds for a longer term, banks assume higher risks and therefore include compensation for these risks in the cost of the loan. The higher cost of long-term loans reflects the banks' uncertainty about macroeconomic development and the cost of borrowing in the future. For example, loans for up to 1 month are currently 6-8 percentage points cheaper for companies than loans for a longer term. Such short-term loans are mostly used by large companies to replenish working capital. Longer investment loans are more expensive.

longer investment loans will be more expensive.

Currently, households mostly take out loans for current needs (cash loans for household appliances, card loans, etc***).*** *There are two factors that play a major role in the cost of such loans: high risks and the balance of supply and demand.* The discount rate is less important for the cost of such loans. Due to the generally low volume and short maturity of the loans, their true high cost is not felt by borrowers, especially during periods of rapid income growth. And positive consumer sentiment is fueling the desire to use the loan to make desired purchases right now.

The high cost of short-term loans for current needs and its low correlation with the central bank rate is not unique to Ukraine. For example, in the United States, the average effective interest rate on card loans is currently above 15%, despite the fact that the Fed Funds rate (the equivalent of the NBU in the United States) is close to zero.

Thanks to favorable macroeconomic conditions, low and stable inflation, and a cut in the key policy rate, mortgage rates have already come down: rates have fallen from 18.7% in June 2019 to around 13% in August 2020. (See the Graph 2).

However, further reductions in mortgage rates will require progress in resolving real estate market problems, improving creditor protection, and reducing credit risks. The most notable risks are those in the primary housing market, where many unscrupulous developers operate. Banks will certainly include all credit risks in the cost of loans. At the same time, in the secondary market, where the bank receives ready-made housing as collateral, lenders are already offering rates close to 10% in some cases.

According to authors' point of view, there are no fundamental obstacles to further reduction in loan rates right now. At the same time, it is important to understand that it will take time for better macroeconomic conditions and changes in the key policy rate to finally affect the cost of loans for end users, whether businesses or individuals. For example, the key policy rate cut to 6% has not yet been fully reflected in bank rates.

Therefore, the cost of loans will continue to decline for some time, along with the cost of deposits. This will be facilitated by low and moderate inflation, which means a low-key policy rate, and the absence of threats of significant deposit outflow

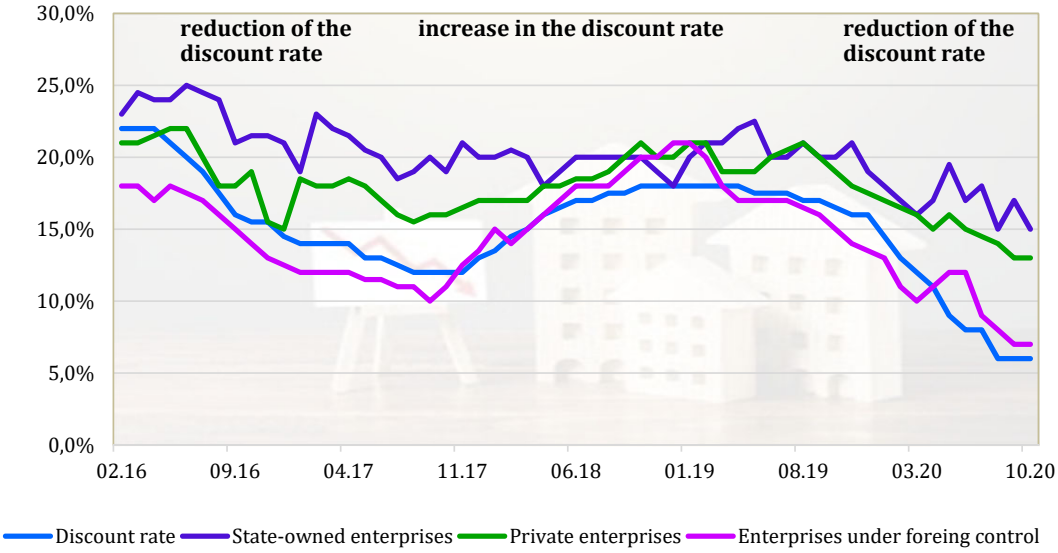

Fig. 2. Hryvnia loans to enterprises, % per annum

Source: NBU [35], authors' calculations.

Simultaneously with the introduction of the 25% (2022) or even 20% (2023) key policy rate, bank lending turned from growth to decline. Its level decreased by a tenth, and the latest monthly data showed a further decline due to the high cost of loans by another UAH 10 billion.

The NBU justifies itself by saying that such a cooling of the economy is a necessary sacrifice to overcome inflation, and that this rate is in line with the global trend of unprecedented rate hikes to combat global inflation.

However, the sacrifice has gone on for too long, and the NBU's policy compliance with international best practices contains many details where the devil is in the details.

Graph 3shows this using the typical example of the United States. Indeed, unprecedented rate increases have been observed in other countries as well.

However, the NBU is silent on the fact that the rates are raised in such a way that they still remain well below inflation, in order to avoid overcooling the economy and the risk of provoking a recession.

And with this policy, despite the NBU's arguments against lowering the rate, there is no increase in inflation in other countries. And in Ukraine, the key policy rate is still close to inflation (Graph 4).

To hide this blatant discrepancy with global practice from both the Ukrainian and international community, the NBU plots inflation and interest rates in the US and other countries on different scales rather than on the same one.

And it chooses the scale for the key policy rate in such a way that it is visually perceived not as significantly lower, as it is in Graph 4, but as close to inflation. Against this background, the fact that we have a rate of 25% roughly equal to inflation looks more or less decent.

By declaring the rate to be the main instrument for influencing inflation, the NBU has excluded the most textbook factor from its quantitative analysis – money supply. You won't find money supply charts like the ones in *Graph 3 and Graph 4* anywhere else.

These graphs clearly illustrate the dependence of prices on money, which means that the dynamics of inflation repeats the dynamics of the monetary base with a certain delay.

Numerous other factors distort the inflation curve (the most recent notable distortion was caused by the lockdowns, which caused an atypical easing of inflation due to a slowdown in the velocity of money), but the overall picture remains the same, and the dominant influence of the monetary base on inflation is still clearly visible.

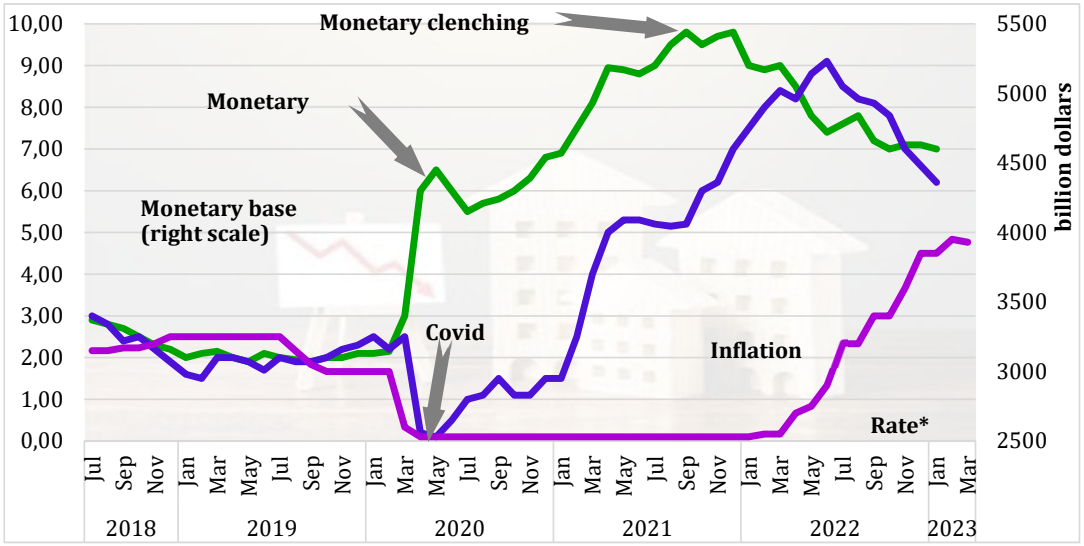

Fig. 3. United States. The dynamics of the monetary base determines the changes of inflation rate with a certain delay

Sources: Federal Reserve, USA [38].

** Federal funds rate (upper bound of the narrow rate band is shown).*

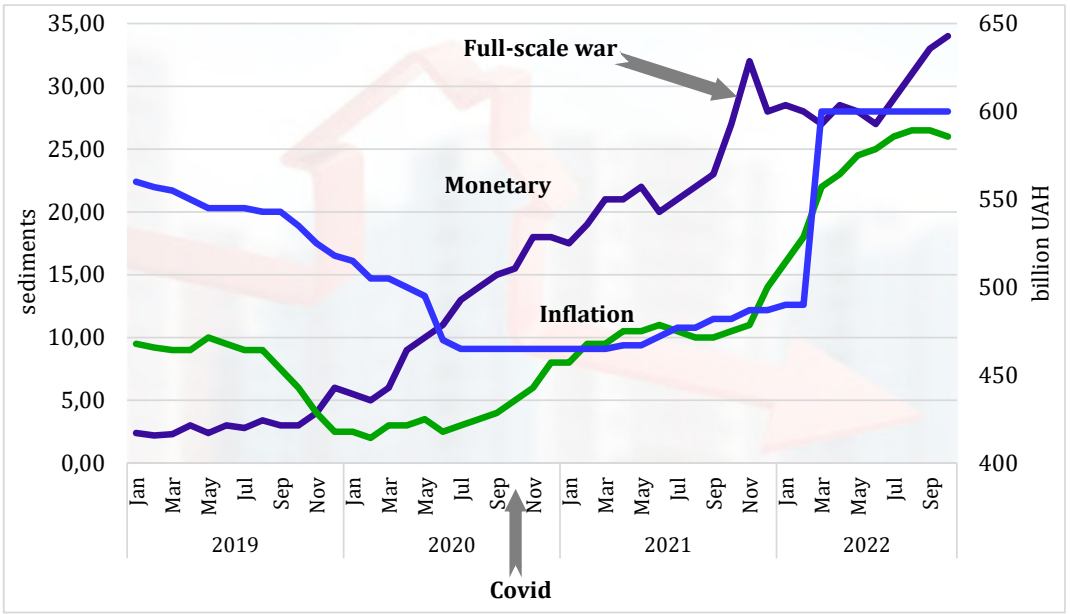

Fig. 4. Ukraine is no exception, and the monetary base has a significant impact on inflation rate

Sources: NBU [35], State Statistics Committee [36].

As for the key policy rate, it remained in a supporting role. This is evident from the fact that the relay race of rate hikes was launched much later than the monetary base turns (when monetary easing was followed by a tightening).

This explains the paradox that inflation turned from upward to downward when rates were still lagging inflation by a factor of five or more.

The answer is simple: those rate hikes had nothing to do with reducing inflation, and the downward reversal was dictated only by money supply compression. Moreover, there is a general conclusion that, in unstable force majeure situations, the standard rule of keeping the key policy rate above or at the level of inflation is no longer valid.

That is, throughout the entire transition period, and until inflation approaches the target under the influence of more powerful instruments, the key policy rate plays a minimal role. Only then can the weak effects of the rate "come back into play".

For example, in the United States, this means that the baton of rate hikes could have been stopped when the rate was returned to its pre-prime rate of 2% and left at that level. Then, it would be possible to continue to fight inflation using only the money supply instrument throughout the transition period. This would save from the risk of triggering a recession by the cooling effect of the key policy rate and from the negative consequences of higher yields and lower market values of government bonds and government securities.

Ukraine is no exception, and as Graph 4 shows, the current stabilization of inflation is largely due to the previous temporary stabilization of the monetary base, although the NBU was quick to attribute this to the "success" of the 25% rate.

This chart also suggests that, given the growth of the monetary base that has been going on for several months, we will see prices turn in the other direction rather than downward in late summer or early fall.

Where Ukraine is an exception is that, despite the textbook dependence of prices on money and its own extensive experience in this regard (the hyperinflation of the 1990s was not caused by the rate and was not overcome by the rate), the NBU demonstratively emphasizes the non-monetary nature of Ukrainian inflation, i.e., the absence or weakness of the money supply's influence on prices.

At the same time, the NBU exaggerates the impact of the key policy rate with the same persistence. The authors are absolutely sure that "tight" monetary policy has been mistakenly equated with a high key policy rate alone. This has resulted in the NBU using a high key policy rate to try in vain to block the more powerful countervailing effect of money, and inflation, which is in fact driven by money, is used as an excuse to keep the rate high. And this vicious circle has been going on for years.

In addition, the existence of the aforementioned force majeure in Ukraine, which offsets the impact of the key policy rate on prices, is doubly obvious: along with changes in the money supply, we also have a reduction in the commodity supply due to the destruction caused by the full-scale war.

Moreover, despite the declared goal of fighting inflation, the key policy rate is actually acting to increase inflation. First, hypothermia reduces the commodity mass in addition to the war-related reductions. Second, the UAH 40 billion issue of certificates increased the money supply and boosted inflation by about 5%.

And similarly, one cannot agree with the NBU's attempts to attribute to the current rate the same ability to stabilize the national currency as in developed countries. And this is when the exchange rate is now mainly dependent on the inflow of foreign currency aid.

What does the experience of other countries tell us?

Graph 5 once again shows the tendency for a "high" rate to be low relative to inflation, and this is true even in countries with almost the same inflation rate as Ukraine, such as Hungary or Moldova.

As for the inflexible principle of keeping the key policy rate at about the level of inflation, Ukraine is almost alone in the club of orthodox supporters of the old rules; and here the NBU risks getting into the wrong textbooks. There is nothing surprising in these "violations" of traditional recommendations. Both theory and practice have confirmed that in extreme force majeure situations, the principle of a "rate above or at the level of inflation" (a positive rate in real terms) loses its force, as inflation is dictated by the money supply and other powerful factors.

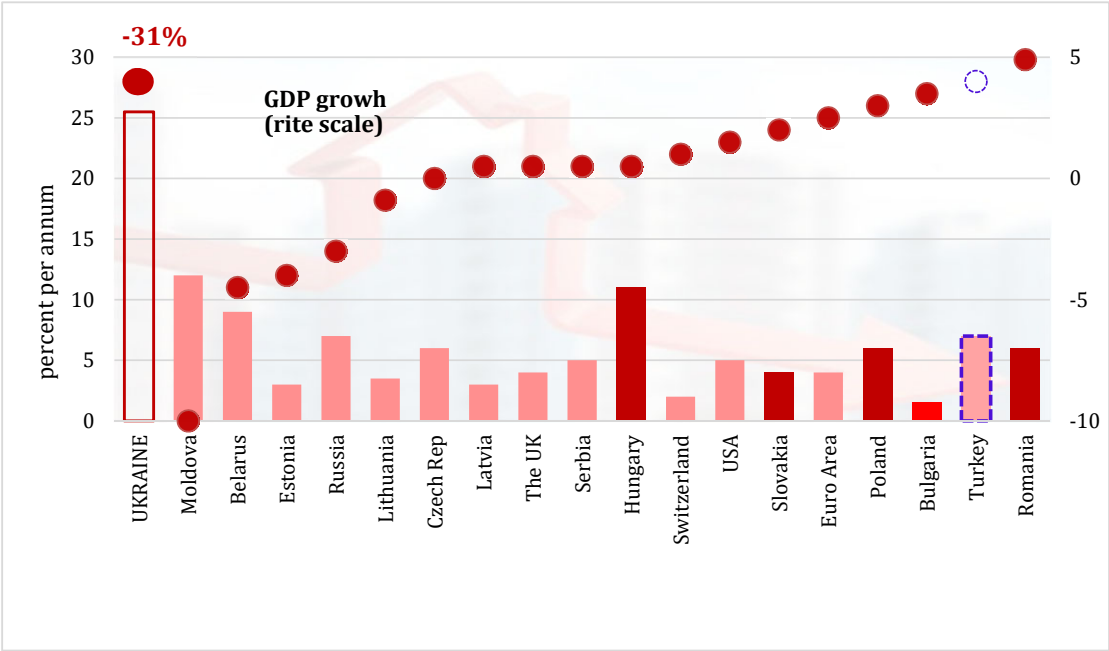

Fig. 5. GDP growth and the key policy rate in different European countries, February 2023

Source: International Monetary Fund [37].

However, for obvious reasons, the IMF cannot yet specify exactly what those extreme situations are that cancel the rate's impact on inflation, and each country determines the existence of such a situation at its own discretion. Obviously, the experience will be generalized and recommendations will be developed later.

The NBU has judged that we do not have an extreme situation; the key policy rate can remain the main tool for fighting inflation, and the rule "lower the rate, higher the inflation" also remains as firm as the law of physics.

Turkey's policy with 55% inflation, 8.5% interest rate, and 3.5% growth stands out, Graph 5 The fact is that the Turkish authorities deliberately allow inflation by financing investment projects with debt and achieving one of the fastest growth rates. Development in this way may look questionable, but what is certain is that Turkey's case cannot serve as proof that it is impossible to lower the interest rate in Ukraine.

We would also like to emphasize the example of Bulgaria, where the interest rate is only 1.4% with an inflation rate of 16%. It is possible that this is why Bulgaria's growth rate is one of the highest among this group of countries.

And if this hypothesis is confirmed, then soon all other countries will also discover the opportunity to move to ultra-low rates and low economic cooling even more boldly.

And Ukraine can take advantage of this like no other, since the reduction of the commodity mass by full-scale aggression has further paralyzed the impact of the discount rate on inflation and beyond; and now the rate can be determined solely on the basis of minimizing its destructive cooling effect.

The question remains: how much the key policy rate should be cut. The first option to start the discussion would be the previous 10% rate. What is certain is that a gradual reduction of the rate by 1–2% would be nothing more than a gradual chopping off of the tail.

We should also add that to ensure a smooth transition process after a radical rate cut, the need for external assistance is estimated at $10 billion. Such a turnaround would help solve numerous knots of problems listed below.

Expanding loan interest reduction programs and improving recovery and development strategies. The implementation of programs such as 5–7–9% has proven that, given the availability of loans, businesses are eager to develop despite Russia's full-scale aggression, and lending under such programs is growing, in contrast to the decline in lending on a general basis due to the high cost of loans.

The key policy rate cut will actually be a systemic macro expansion of local programs, which will be more effective than the current plans to expand the number of participants in these programs, as this path is limited by budgetary constraints.

This is most clearly seen in the intention to extend state support from small to large enterprises. For example, the project "Establishment of the National Fund for Structural Transformation..." envisages that interest will be compensated for loans with a total amount of up to UAH 700 billion.

This will cost the budget more than UAH 70 billion. In addition, the launch of a 9% loan program to rebuild war-ravaged businesses will unfortunately also require budgetary expenditures.

Therefore, the key policy rate cut will be a systematic continuation of the idea of cheaper loans, now at the national level, for everyone.

The dispute between the Ministry of Finance and the NBU over government bond yields. The Ministry of Finance is particularly interested in lowering the key policy rate, as, along with expanding the tax base, this will also help to reduce the yields on government bonds and interest costs. This means that "non-issue financing of the budget deficit" has contradictorily led to an increase in the deficit.

No less surprising are the attempts to combine the progressive requirement that the yield on government bonds be competitive and determined by the free market with a completely non-market-based discount rate of 25%, which administratively sets what the free market should voluntarily generate.

And now is the moment when a much lower rate, without the fear of inflation, will open up the possibility for government bonds and commercial loans to figure out how to compete in a real market.

Implementation of the 10–10–10 tax reform package. A tax rate cut will broaden the tax base and contribute to the success of these reforms. Increasing the level of cooperation with the IMF and other partners. The IMF's loans to the NBU are growing, but are still provided with some restraint. This stems from the IMF's position that in order to increase assistance to Ukraine, it should first "wait for greater stability" because at this time "it is unrealistic (unfair) to expect the Ukrainian authorities to develop and implement a far-reaching reform package".

And even the latest larger package of international aid worth $115 billion has so far materialized in the form of payments on the NBU's obligations to the IMF, leaving net aid of $1 billion.

In this context, the optimization of the key policy rate could accelerate the increase in foreign aid, as:

– this realistic measure would mark one of the turns from words to deeds in implementing reforms and fighting corruption;

– it will be not only European, but even global integration into truly best practices of setting the rate in extreme situations;

– and it will be a step towards creating a market environment favorable for recovery and development on a market basis.

In other words, the transition to a civilized interest rate policy will clear the way for the success of numerous accelerated recovery programs, as it is difficult to convince external donors and investors of anything when domestic investment is so slow, depressed, and far from being fully exhausted.

Conclusions. As conclusions and recommendations from this article, it is worth noting that the use of interest rate policy as a tool for regulating the banking system provides the National Bank and the Government with several advantages, including:

A. Simplicity of Implementation: To change the course of monetary policy, the National Bank of Ukraine (NBU) resorts to increasing or decreasing the discount rate.

B. Predictability of Results: When the discount rate is lowered, it leads to an increase in the liquidity level of the banking system, and vice versa.

C. Speed and Ease of Correcting Results: Corrections can be made quickly and easily by taking opposite actions.

The material presented allows for the following conceptual conclusions:

1. Interest rate policy is an effective tool for regulating the banking system, particularly a bank's credit potential.

Increases in interest rates change the attractiveness of certain investment strategies developed by the Government.

In Ukraine, as analysis shows, this leads to the withdrawal of funds from promising (direly needed by society) industries or the country as a whole.

In turn, such rapid repayment of funds leads to losses for asset holders. This inevitably results in further deleveraging by asset holders and a sharp increase in demand for liquidity.

According to the results of our analysis, this leads to inverters selling their most liquid assets, which will reduce the liquidity of their portfolios.

Although Ukraine's economic system has demonstrated resilience to higher interest rates at the aggregate level, the full impact of high interest rates (22–25%) remains uncertain as these rates have not yet fully impacted the economy.

In wartime conditions, high interest rates coupled with uncertain growth prospects could trigger a revaluation of asset prices and create the risk of further tightening of financial conditions for other investors, including foreign ones. This could pose risks to Ukraine's financial stability due to tightening financial conditions, sharp movements in asset prices and reduced confidence in the global banking system, as well as trade and financial spillovers.

The analysis shows that the measures taken by the NBU to hedge risks associated with higher interest rates are based on assumptions about the future path and volatility of interest rates and do not fully protect investors from the risks associated with higher and more volatile interest rates.

Losses resulting from high interest rates have already weakened the balance sheets of some large corporations and may continue to do so.

2. The decision to apply an expansionary or restrictive policy depends on the conjuncture of the financial market and the socio-economic situation in the country.

As is known, the main goal of expansionary policy is to increase aggregate demand to compensate for the shortfall in private demand. Expansionary policies aim to increase business investment and consumer spending by injecting money into the economy, either through direct spending on government deficits or by increasing lending to businesses and consumers.

Based on the results of the analysis carried out by the authors of this article, it is necessary to conclude that the Government of Ukraine (GoU) does not use the instrument of this policy. If only because the government is not pursuing policies that ensure people get more money. This could be achieved by reducing volumes, for example, of utility costs and direct taxes, which is envisaged by expansionary fiscal policy. This could help increase the money supply and stimulate global public demand.

Additionally, for example, the GoU could increase discretionary state’s spending by pumping more money into the economy through government contracts, such as for weapons production. Additionally, it can lower taxes and leave more money in the hands of people who will then continue to spend and invest.

At the end of the war, when Ukraine enters a phase of economic growth, the GoU may increase spending on infrastructure projects, social programs and other initiatives to increase demand and stimulate economic growth.

As the analysis showed, expansionary monetary policy works by increasing the money supply faster than usual or lowering short-term interest rates. For example, when the base rate on govern-

ment bonds decreases, the cost of borrowing from the NBU also decreases, giving commercial banks greater access to cash. This, in turn, allows banks to lend more of their capital to consumers and businesses. Obviously, when a central bank buys debt instruments, it injects capital directly into the economy.

3. The optimal discount rate should ensure the efficient resolution of tasks such as providing an adequate level of liquidity for banking institutions, balancing money supply and demand, stimulating bank credit issuance to the real sector of the economy, and enhancing the competitiveness of the domestic banking system.

It is necessary to develop the country's liquidity management strategy, including its foreign exchange reserves, should formulate specific policies on aspects of liquidity management, such as the size of assets, their structure, approach to liquidity management in different currencies, relative dependence on the use of certain financial instruments.

There should also be a strategy agreed with international creditors to restructure the debt and eliminate potential threats to both parties with loss of liquidity.

4. Given the negative side effects of interest rate caps, it is worth considering alternative ways to lower interest rates. The optimal solution always depends on the political goals that the country's top leadership sets for the NBU and the Government.

If the intended policy goal is to reduce the overall cost of credit in the economy or its individual sectors (types of economic activity), alternative solutions should be based on the reasons for causing excessively high rates, for example, lack of competition, the presence of excessive risk, a number of macroeconomic considerations.

To this end, the authors propose to create an effective credit monitoring mechanism, the activities of which will be aimed at analyzing data on the reasons for setting excessively high rates, as well as on trends occurring in other countries.

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DOI https://doi.org/10.30525/2592-8813-2024-spec-2

INFLATION TARGETING AND ECONOMIC GROWTH IN UKRAINE (THEORY AND ITS APPLICATION IN THE PRACTICE OF THE NATIONAL BANK)

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Abstract. The reciprocal, two-way relationship between inflation and economic development, which is often, although not entirely correctly, measured by GDP dynamics, is the subject of long discussion in the economic literature. Following the main conceptual results of this debate, the authors analyze the relationship between economic growth and inflation in Ukraine over the past decade.

The goal of this article is to determine not only the impact of inflation on economic growth, but also to assess the level of effectiveness of government policy to curb inflation. Which is implemented, inter alia, through inflation targeting carried out by the National Bank of Ukraine.

The article discusses the main results of the implementation of this policy, draws relevant conclusions and formulates conceptual recommendations.

Key words: interrelationship between inflation and economic development, economic growth, inflation targeting, Keynesian policies, money supply, national banking policy, Phillips Curve, qualitative and quantitate analysis, the Tobin Effect.

Introduction. The reciprocal, two-way relationship between inflation and economic development, which is often, although not entirely correctly, measured by GDP dynamics, has been the subject of many years of discussion among academic economists, joined by politicians and heads of government agencies, in particular, central banks. The main question is whether inflation has a positive impact on economic development, or whether it is a negative factor that impedes economic growth.

At the same time, it should be noted that despite many years of discussion, the issue still remains unresolved.

Empirical and theoretical research studies conceptually examine three types of relationships between inflation and economic growth. Namely, positive, negative and sometimes a complete lack of connection.

At the beginning of the last century, the main scientific economic doctrine was Keynes's theory, which considered inflation as a factor that has a positive impact on the dynamics of the economy. Keynes's followers used the Phillips curve as an argument, which describes high inflation as a prerequisite for significant economic growth, which results in low unemployment. In fairness, it should be noted that there are also empirical studies, the results of which do not establish a close and significant positive relationship between inflation and economic growth [1, 2].

There are other scientific studies, particularly in Ukraine, the results of which indicate that in some cases this relationship was positive and sometimes negative in the long term.

The presence of such contradictory results encourages scientists to further research in the field of analysis of the direction, tightness and significance of the relationship between inflation and economic growth.

Such an analysis is of particular importance in developing countries with turbulent economies, which are more susceptible to high inflation volatility, which largely determines the level of consumption, investment volumes and production dynamics. At the same time, it is important to note that in some cases, excessive government intervention in the economic life of countries causes the above-mentioned turbulence, and often a collapse of markets.

The authors point out that this is exactly what is happening in Ukraine, as one of the countries of the post-Soviet bloc.

All of the above indicates the need for in-depth scientific research, the subject of analysis of which is the direction and level of the relationship between the dynamics of consumer prices and economic growth.

The structure of the article is presented as follows. The presentation of the main materials of the study is preceded by a deep and comprehensive analysis of the literature devoted to the problem under study.

The third section is devoted to scientific methodology, which is the conceptual basis of the study. The next two sections are devoted to the presentation and discussion of the research results, conclusions and recommendations.

Literature review. As noted above, the nature of the relationship between inflation and economic growth, the direction of this relationship, and such statistical characteristics as its closeness and significance have been widely studied in the scientific economic literature. There are empirical results from serious academic research indicating that there is a close and very significant positive relationship between the dynamics of consumer prices and economic development [1]. The main postulates of Keynes' theory state that there is a short-term relationship between changes in the level of inflation and the volume of GDP. But in the long term this connection is not visible.

Analysis of the well-known Phillips curve also gives reason to believe that high inflation is a factor that has a positive effect on the dynamics of economic growth and limits the level of unemployment.

This is also evidenced by the Tobin effect, which suggests that inflation forces people to carry out investment activities by investing money in interest-bearing assets. This, in turn, contributes to an increase in the volume of capital, which leads to a revival of economic dynamics. Thus, until the middle of the last century, inflation demonstrated a positive, close and significant relationship with macroeconomic indicators of economic development [4].

However, the situation changed in the 1970–1980s. During this period, the national economies of many countries, both developed and developing, experienced hyperinflation and mass unemployment.

As a result, the view that persistent and high rates of inflation can have very adverse consequences for economic growth in the long term has begun to prevail in the economic literature [5–7–8].

A more in-depth analysis based on economic and mathematical modeling methods [9–10] showed that inflation does not have a constant significant impact on economic dynamics, with the exception of those countries where its level exceeds 40%. Then, as the modeling results indicate, hyperinflation begins to have a very significant negative impact on changes in the volume of explosives. Studies based on cross-country comparisons [11–12–13] confirm the same point of view. In those countries where high rates of growth in consumer prices were recorded for a sufficiently long period of time, a very significant decline in the rate of economic growth was observed.

In addition, it can be considered proven that a high level of inflation has a negative impact on the volume of investments, an increase in the volume of which contributes to macroeconomic stability and, as a result, economic development [14]. American economic economist Fisher believes that since there are no compelling arguments in favor of high inflation, governments that allow a significant increase in consumer prices lose control over the situation in the national economy. Thus, it is the inflation rate that should be considered one of the indicators of macroeconomic stability and the government's ability to regulate the rate and proportions of economic growth.

The authors studied a fairly large number of sources containing the results of empirical studies of the patterns between inflation and growth, conducted in seventy countries [15–17], both industrialized and developing. Based on these data, it was concluded that the relationship between inflation and growth is uneven across countries. However, the vast majority of countries demonstrate reciprocal causality during the analyzed period.

A number of recent studies have provided evidence to support the argument that inflation has a negative impact on economic growth. In fact, he studied. For example, the source [18] analyzes the relationship between inflation and economic growth in Turkey (which, according to the authors, could become a good example for Ukraine) over the past twenty years. At the same time, a stable negative relationship was found between the variables.

On the other hand, cross-country studies show that countries that experienced higher economic growth had relatively low inflation rates. For example, a study by the World Bank says that East Asian countries, which have very little inflation, have experienced sustained high economic growth over the past two decades. First of all, due to the high rates of investment in economic development [21].

Some studies argue that the relationship between inflation and economic growth may differ depending on the level of openness of the economy. It manifests itself more intensely in open economies, which make more active use of foreign and domestic direct investment.

Methodology. The study uses data from the State Statistics Service of Ukraine [28], the National Bank of Ukraine [29], as well as the World Bank Indicators [33] on the growth rate of real GDP and inflation in Ukraine over the past ten years. Initially, a test was carried out to determine the stationarity of each time series. If any variable did not show stationarity of development, it was transformed using the multivariate cointegration method

Results and discussion. The authors believe that the presentation of the main material should begin with Table 1, which characterizes the relationship between key rate of the world's central banks and the inflation rate in eleven most developed and twenty developing countries including Ukraine.

According to economic theory and the practice of banking institutions, in particular central banks, the bank rate is the interest rate at which the country's central bank (National Bank of Ukraine (NBU) in our case) provides money to commercial banks in the form of short-term loans.

Bank rate management is a system of measures by which central banks (NBU) influence economic and investment activity. Obviously, lower bank rates can help warm up the economy by lowering the cost of funds for borrowers, and higher bank rates help regulate the national economy when the inflation rate rises above the planned (targeted) value.

Thus, the key interest rate is the main tool available to central banks to influence the level of inflation.

As a rule, central banks make decisions regarding the level of the key rate depending on the state of the economy in the country and the competitive environment. The NBU Board decides to leave the key rate at the same level, raise it or lower it and announce the decision at a press briefing after its meeting.

Table 1

The relationship between the key bank rate of the world's central banks and the inflation rate

Country	Key Rate, %	Consumer Price Index, %	Key Rate – CPI, %	Date
Developed Markets				
Switzerland	1	2,8	-1,8	Dec.22
USA	4,38	6,5	-2,1	Dec.22
Canada	4,25	6,8	-2,6	Dec.22
N. Zealand	4,25	7,2	-3	Nov.22
Norway	2,75	5,9	-3,2	Dec.22
Australia	3,1	6,9	-3,8	Dec.22
Japan	-0,1	3,8	-3,9	Jan.16
UK	3,5	10,7	-7,2	Dec.22
Eurozone	2	9,2	-7,2	Dec.22
Denmark	1,25	8,7	-7,5	Oct.22
Sweden	2,5	12,3	-9,8	Nov.22
Emerging Markets				
Brazil	13,75	5,8	8	Aug.22
Mexico	10,5	7,8	2,7	Nov.22
China	3,65	1,8	1,9	Aug.22
India	6,25	5,7	0,6	Dec.22
Indonesia	5,5	5,5	0	Nov.22
South Africa	7	7,4	-0,4	Nov.22
Peru	7,75	8,5	-0,8	Jan.22
Taiwan	1,75	2,7	-1	Dec.22
Colombia	12	13,1	-1,1	Dec.22
Malaysia	2,75	4	-1,3	Nov.22
South Korea	3,5	5	-1,5	Jan.22
Chile	11,25	12,8	-1,6	Oct.22
Russia	7,5	11,6	-4,1	Sep.22
Thailand	1,25	5,9	-4,7	Nov.22
Czech	7	15,8	-8,8	June.22
Poland	6,75	16,6	-9,9	Sep.22
Hungary	13	24,5	-11,5	Sep.22
Argentina	75	94,8	-19,8	Sep.22
Turkey	9	64,3	-55,3	Nov.22
Ukraine	25	16,6	+8,4	Dec.22

Source: Authors' calculations

One can say that most countries are currently competing with each other in terms of the magnitude of negative real interest rates. Among developed countries, the leaders in the “negative” category are the Eurozone, the USA, the United Kingdom, and Scandinavia. Among developing countries such are Turkey, Thailand, Hungary, Argentina, South Korea, Chile, Malaysia, and Taiwan.

In essence, the entire civilized world is in the "zone of negative real interest rates", with countries literally competing with each other to provide their businesses with a larger interest rate advantage and, thus, a more efficient credit lever.

Ukraine, therefore, is the only country among those represented in Table 1 where the credit interest rate exceeds the inflation level (in our case, the consumer price index).

Upon realizing this, the authors set out to analyze the global practices of central banks in different countries that, while achieving relatively high, and more importantly, stable economic growth rates, managed to keep inflation at relatively low levels.

It was concluded that central banks most often employ the following monetary policy regimes: targeting the exchange rate of the national currency, monetary targeting, and inflation targeting.

Exchange rate targeting focuses on the national currency exchange rate as the target inflation indicator. The following sub-regimes may be applied: pegging to a stable foreign currency (most often the dollar or euro), a "currency corridor" or a fixed exchange rate. The logic behind using exchange rate targeting is that the exchange rate, as the purchasing power parity ratio of two currencies, serves as an indicator of the purchasing power of the national currency in relation to the strong foreign currency with which it is compared. A decrease in the national currency's exchange rate signifies a decrease in its purchasing power.

Monetary targeting implies managing the volume of the "broad" money supply. In this targeting approach, the influence on the inflation level is exerted through control over the dynamics of the corresponding money aggregate (M2 or M3).

When it comes to inflation targeting, the most commonly chosen target indicator is the consumer price index or its derivative – core inflation, which excludes short-term sharp price changes influenced by administrative, seasonal, or cyclical factors. This regime aims to reduce the inflation expectations of the population and entrepreneurs by increasing their confidence in the central bank's credit and monetary policy.

According to IMF data as of 2022, the inflation targeting regime was applied in 38 countries, as well as in the Eurozone (comprising 19 countries).

In Ukraine, the National Bank (NBU) began implementing the inflation targeting (IT) procedure in 2016, after the adoption of the Monetary Policy Strategy for 2016–2020. As a result, the NBU switched from using a fixed exchange rate to a flexible inflation targeting regime. With this approach, based on the use of the results of scientific research on the state of the economy and its forecast, inflation targets are determined and published, which the NBU undertakes to achieve in the medium term. At the same time, the NBU does not determine the price level for individual goods and services.

Despite the criticism that accompanies the use of this mechanism of monetary regulation, it is necessary to objectively assess the potential positive consequences of this regime. In particular, it establishes a nominal anchor for monetary policy that most closely aligns with price stability. In the IT regime, there is flexibility in the choice of monetary policy instruments, allowing for the determination of the most appropriate methodology for achieving target indicators in a given economic situation and specific macroeconomic environment. Finally, a clear criterion for the central bank's performance emerges, which is the stabilization of price expectations among the population.

After a deep analysis of the specialized literature on the researched issue, the authors conclude that in each specific case, the intermediate goal of monetary policy is the forecast of inflation over a certain period of time. For this reason, inflation targeting is often referred to as "forecast targeting". This name was given to the regime by Professor of Princeton University and Deputy Governor of the Central Bank of Sweden, Lars Svensson, in 1997.

By adjusting monetary policy based on new information, the central bank affects expected inflation and gradually brings it in line with the target. Acting in this way, it eventually aligns actual inflation with the target level. The key phrase here is "over time".

When applied to the Ukrainian economy, inflation targeting has its specifics. In particular, international experience suggests that inflation targeting can be effective when it is based on a long-term experience of low inflation. However, in the years leading up to the introduction of this regime, inflation in our country was very high: 24.9% in 2014 and 43.3% in 2015.

Desiring to reduce the level of inflation, the NBU introduced the IT procedure in 2016, which was a logical response to such high price growth rates. It may seem that achieving the inflation target in 2016 indicates the correctness of transitioning to inflation targeting. However, firstly, the transition to this regime is recommended after several years of low inflation, and secondly, the reasons for the significant slowdown in price growth in 2016 could have been natural and not solely a result of the IT regime (the end of the devaluation shock also played a role). Perhaps that's why the successes that the NBU had in inflation targeting are temporary in nature for now.

In addition, the experience of developed countries shows that effective achievement of the inflation target is possible only with stable rates of economic growth over a long period of time, in the absence of serious imbalances in its structure, and with low rates of price growth in industry. In the period preceding the introduction of the IT regime, significant economic growth rates were not observed in Ukraine. Thus, in particular, in 2014, GDP decreased (compared to 2013) by 6.8%, in 2015 (compared to 2014) – by 9.9. The structure of the economy was clearly skewed towards the dominance of the raw materials and semi-finished goods production and remained so. Prices in industry grew at a high rate: in 2014 – by 31.8%, in 2015 – by 25.4.

So, there were many prerequisites lacking for the transition to an inflation targeting regime in our country. Inflation is a complex, multifactorial, and contradictory process, and monetary policy measures often have an impact on the economy with a significant time lag. Inflation is subject to significant inertia, and plans to bring it to specific levels over a few years were not realistic, as the authors had pointed out back in early 2016 [25; 26].

Additionally, in Ukrainian conditions, inflation often arises due to uncoordinated actions of government bodies. The reliability of forecasts in our conditions is inherently questionable (there are also doubts about the forecasting abilities of NBU specialists). Therefore, they may not always serve as a quality basis for decision-making.

In discussions about the benefits or harms of inflation targeting, it is crucial not to forget about our main strategic goals – economic growth, reducing unemployment, and increasing people's incomes. Stabilizing inflation at a low level by itself does not guarantee the achievement of these goals. Moreover, the instrument currently used by the NBU for this purpose – raising the discount rate – leads to more expensive loans.

Nobel laureate in economics, Joseph Stiglitz [22], wrote: “Raising interest rates can reduce aggregate demand, which can slow down the economy and limit price increases for some goods and services. But these measures alone cannot bring inflation down to the planned level unless rates are raised to an unbearable level. For example, even if global energy and food prices increase more moderately than they do today and have less of an impact on domestic prices, reducing overall inflation to, say, 3% would require a significant reduction in other prices. Almost certainly, this would lead to a noticeable economic downturn and high unemployment. The cure would be worse than the disease”. Of course, the National Bank is obligated to strive for inflation stabilization at a level around the specified target. The authors believe that this level should fall within the range of single-digit figures, closer to 5–7%. However, the National Bank may also desire to promote economic growth at the maximum potential level. The stabilization of real sector variables, such as production growth and employment, does not always make it into the list of goals for the central bank of any given country. But inflation targeting can vary from rigid, where the central bank is not concerned with the problems of the economy’s real sector, to flexible, where it shows some concern about it. Considering that dynamic economic growth is what the people of Ukraine expect from the

government, the NBU needs to consider a variant of using flexible inflation targeting that does not hinder economic growth, at the very least.

In answering the question of whether combating inflation or economic growth is more important, the authors believe that these issues are equally significant. Furthermore, they argue that reasonable compromises are needed to avoid pursuing one goal at the expense of complicating the achievement of the other. Addressing the question of how suppressing inflation contributes to economic growth, they typically respond that when economic agents are confident in price stability, they are more likely to increase production. While this argument has some validity, low inflation alone will not solve key problems such as weak domestic demand, technological lag, and high energy and material intensity. Affordable loans for the real sector of the economy can help address these issues.

It is evident that the inflation targeting regime is characterized by limited discretionary powers. This is because the central bank (as well as central banks in general) is tasked with keeping inflation at the targeted level regardless of the macroeconomic shocks it encounters. The central bank's actions are predetermined, and as such, lack flexibility, which may not always be viewed positively. Taking this into consideration, the authors believe that central banks have a broader range of possibilities under monetary targeting.

However, it is not advisable to completely abandon inflation targeting. This is partly because inflation targeting is a condition of Ukraine's cooperation with the IMF, and IMF loans are currently vital for Ukraine. But there is an opportunity to approach the issue more flexibly. For example, the authors favor the classification of types of inflation targeting proposed by IMF economists A. Carare and M. Stone [31]:

– Full-fledged inflation targeting.
– Eclectic inflation targeting.
– Lightweight inflation targeting.

In countries where full-fledged inflation targeting is applied, central banks enjoy a high or near-high level of trust from market players and the general population. They clearly define the inflation target for a specific period with a firm commitment to achieving it. Full-fledged inflation targeting involves a high degree of transparency in central bank actions and accountability for the decisions it makes.

Eclectic inflation targeting allows for maintaining inflation at a fairly low and stable level without strict accountability for meeting the inflation target. This is possible in conditions of high financial stability and permits the maintenance of other macroeconomic variables at appropriate levels, such as employment, economic growth, the balance of payments, etc. Eclectic inflation targeting is used by more than two dozen countries, including Algeria, Indonesia, Romania, Singapore, Slovakia, Switzerland, Japan, and others.

Lightweight inflation targeting is considered a transitional regime practiced in some developing countries during structural economic reforms. Its feature is that monetary authorities announce wide possible ranges of inflation fluctuations, but in practice, these are not strict commitments or unconditional targets for monetary policy. Lightweight inflation targeting entails greater opacity in central bank decisions compared to full-fledged and eclectic regimes, and a relatively low level of trust from society in policy objectives.

Essentially, Ukraine currently operates under a lightweight inflation targeting regime. Over time, the country may transition first to an eclectic regime (it is assumed that such a regime can be implemented immediately after the end of the war) and then to a full-fledged inflation targeting regime. However, it is essential to seize the opportunity that eclectic inflation targeting provides to address economic growth issues.

Joseph Stiglitz, in his article “Inflation Targeting: Lessons from the Reality”, [22] asserts the following: “Fighting rising prices for food and energy is a challenging task. Anemic economic growth

and higher unemployment resulting from inflation targeting moderately affect inflation but complicate survival in these already difficult conditions". It is important not to ignore the perspective of a Nobel laureate. To avoid replicating the same impact on economic growth as with inflation, which we need to boost, in our attempt to suppress inflation, we must carefully consider the pace of growth.

In the 1990s, the National Bank of Ukraine (NBU) adhered to a "rules-based policy", although as early as 1993, John Taylor published his famous article, "Discretionary Policy versus Policy Rules in Practice" [32].

In the 2000s, with its fixed exchange rate, the NBU appeared as an outlier compared to the discretionary policies of central banks worldwide, where the monetary authority reacts unexpectedly to the dynamics of key economic aggregates. The NBU was remarkably predictable during that time.

Since 2016, the NBU has been pursuing mainstream inflation targeting policies, aligning Ukraine with countries like the Czech Republic or New Zealand in terms of addressing the challenges of structural economic transformation.

However, the paradox lies in the fact that since 2008, with the launch of quantitative easing programs, the GDP targeting has silently woven itself into the target of central banks worldwide, even if a dual mandate is not explicitly stated in their charters.

Now, a new mainstream approach is reflected in Table 1. It's worth noting that, in the process, negative real interest rates are being formed, where the central bank's rate is lower than inflation. This creates an inflation premium for businesses through accessible financing and allows entrepreneurs to compete internationally.

In this context, the question, or rather the perplexity arises: immediately after the start of russia's large-scale military invasion of Ukraine in February 2022, the NBU raised its rate by 2.5 times, from 10 to 25 percent (Table 2).

Table 2

Value of the NBU discount rate during the war (from January 2022 to 2023)

Period	Discount rate, (%)	Change in the discount rate, (%)
from 15.09.2023	20,00	**-2.00**
from 28.07.2023 to 14.09.2023	22,00	**-3.00**
from 16.06.2023 to 27.07.2023	25,00	0.00
from 28.04.2023 to 15.06.2023	25,00	0.00
from 17.03.2023 to 27.04.2023	25,00	0.00
from 27.01.2023 to 16.03.2023	25,00	0.00
from 09.12.2022 to 26.01.2023	25,00	0.00
from 21.10.2022 to 08.12.2022	25,00	0.00
from 09.09.2022 to 20.10.2022	25,00	0.00
from 22.07.2022 to 08.09.2022	25,00	0.00
from 03.06.2022 to 21.07.2022	25,00	**15.00**
from 04.03.2022 to 02.06.2022	10,00	0.00

Source: Ministry of Finance of Ukraine [30].

The consumer price inflation rate for January to December 2022 in Ukraine was 16.6% compared to the same period in the previous year (average annual inflation). The NBU's policy rate was 25%, which means the real interest rate was 8.4%. If you consider the forecasted inflation, the real interest rate would be even higher.

The process by which the key rate influences inflation is called the "monetary policy transmission mechanism".

Using the prescribed procedure, at the first stage the NBU determines the base level of short-term interest rates in the interbank market.

As is known, it is interbank rates that determine the values of aggregate demand and inflation. This is done through various procedures, in particular, interest rates, stock and commodity exchanges, and the exchange rate of the national currency.

The mechanism for managing expectations is more effective the more the public trusts the regulator, that is, the more understandable and consistent the inflation targeting policy is.

It should be noted that the operation of the monetary transmission mechanism requires time, and most importantly, a clear methodology based on macroeconomic forecasts.

As the results of the analysis conducted by the authors show, in Ukraine, changes in the NBU key rate have any noticeable impact on the inflation rate after 9–12 months. Thus, the NBU's decisions on monetary policy are a reaction not to expected future events, but to events that took place in the past.

The impact of changes in the key rate on the short-term behavior of the money (interbank) market is the first stage in the implementation of the monetary transmission mechanism. Typically, central banks control short-term rates very effectively by timely adjusting the volume of bank liquidity. Naturally, if there is a liquidity surplus, central banks absorb excess liquidity, while if there is a liquidity deficit, central banks carry out the process of injecting funds into the banking system.

In the first case, the NBU sells certificates of deposit or government securities from its own portfolio on the market. It can also carry out reverse repo transactions, that is, the sale of securities with an obligation to repurchase them after a certain period of time.

In conditions of liquidity shortage, the NBU issues loans to commercial banks and/or accepts liquid collateral. There may also be a purchase of government securities or a reverse repurchase transaction.

By setting the key rate, the NBU gives a signal to the market about the level of rates that it considers optimal for achieving the goals of its strategic monetary policy.

In order to bring the levels of market rates closer to a value acceptable for the central bank, that is, to the key rate, the NBU carries out its operations at the key rate. In particular, in conditions of liquidity surplus, the main banking operation of the NBU is the sale of two-week certificates at a rate absolutely close to the key discount rate.

To reduce market volatility, the NBU also applies already proven mechanisms, including the sale of certificates of deposit for 1 percentage point. below the key rate and providing overnight loans by 1 percentage point. higher than the key rate.

The authors believe that the influence of the NBU on short-term interbank rates is effective as long as the bank does not impose additional restrictions when attracting or providing short-term loans. It is obvious that commercial banks carry out their transactions both with the central bank and with each other. For this reason, short-term interbank rates typically fluctuate between central bank rates on certificates of deposit on the one hand and overnight lending rates on the other.

The NBU has been determining the value of the key rate since its adoption as a normative rate in 1992. But until 2015, the key rate had little effect on bank rates. Because this rate did not determine the bank's policy. If only because the instrument: the interest rate on the main operations of the NBU was not tied to the key rate. Currently, that is, after 2025, the current system allows the NBU to effectively manage short-term interbank rates and maintain them close to the base value of the key rate.

Separately, it should be noted that a more important tool for influencing economic processes is medium- and long-term interest rates. At these rates, the banking system attracts funds temporarily available in commercial banks and directs them to where they are needed. Thus, medium- and long-term rates on bank deposits and loans depend both on short-term interbank rates and on the state of the national economy and financial system, as well as on the level of competition within the national banking system, confidence in banks, inflation expectations of the population, and the volume of demand for loans, etc.

In 2016–2017, the relationship between short-term interbank rates and rates on bank loans and deposits strengthened significantly. This happened as a result of the fact that the NBU significantly changed the design of the short-term tariff management system. As a result, the volatility of short-term rates has decreased significantly, and commercial banks have received a reliable indicator of the cost of money on the market, which allows them to make transactions with the NBU to manage liquidity.

The authors argue that changes in bank interest rates largely determine the decisions made by households and businesses, especially regarding the choice between consumption/investment and saving. It is clear that when deposit interest rates rise, households tend to save more and consume less. In contrast, when lending rates rise, businesses invest less because their expectations of higher loan payments and lower demand for the products they produce rise. It is clear that rising rates lead to lower consumer and investment spending and increased savings. On the other hand, a decrease in aggregate demand for goods and services restrains price growth, and an increase in aggregate demand leads to an increase in the inflation rate.

The situation in the Ukrainian banking system in 2012–2014 is a clear example of the impact of high rates on expectations of low inflation and a stable exchange rate. Despite the recession that began in 2013, the growth of household hryvnia deposits has noticeably accelerated. Against the backdrop of the fact that real interest rates rose significantly and, as a result, inflation dropped to zero in those years.

Short-term interest rates also have a significant impact on long-term rates, especially the yield on government securities. These domestic government bonds are the safest debt instruments on the market because their price includes the lowest risk premium and the yield provides investors with a benchmark for the risk of investing in other securities.

The maturity of domestic government bonds varies from several months to several years, and their yield, depending on the maturity period, forms the so-called yield curve, which characterizes the relationship between profitability and investment period.

In addition to interest rates, the key rate regulates the state of the economy through the exchange rate, which is extremely important for open economies with significant foreign trade flows and the presence of foreign capital.

In developed economies with free movement of capital, the exchange rate procedure allows you to borrow funds in a country with lower interest rates and buy bonds or, for example, deposits in another. In this case, an increase in the rate should stimulate the influx of foreign currency, which, in turn, increases the demand for the national currency and strengthens it.

It should be noted that, implementing its own NBU policy, Ukraine issues government bonds of varying yields both in hryvnia and in foreign currency. Obviously, if an increase in the key rate causes an increase in the yield of hryvnia government bonds, rather than foreign currency bonds, investors can sell foreign currency bonds and buy hryvnia bonds. In exactly the same way, individuals can choose between deposits in national and foreign currencies.

From this, the authors conclude that changes in the exchange rate affect the balance of supply and demand for foreign currency.

Obviously, the consumer price index (CPI) reflects the prices of both imported and domestic goods. As a result, importers competing with each other are forced to adjust prices for their products depending on the hryvnia exchange rate. When the hryvnia strengthens against the dollar, you can buy more goods with dollars while spending the same amount in hryvnia. As a result, the volume of imports in dollar terms is growing.

At the same time, Ukrainian goods are becoming more expensive in dollar terms, which makes Ukrainian goods less competitive in world markets. As a result, inflationary pressure on the economy decreases, but the trade balance worsens.

Taking into account that Ukraine also imports raw materials, the exchange rate also affects the final prices of consumer goods.

Research on the impact of the exchange rate on the price level shows that the inflation response varies depending on the intensity of the exchange rate change. The analysis shows that a 1% change in the exchange rate contributes to a 0.71% change in the inflation rate. A significant change of more than 15% has a significantly smaller impact on inflation. In addition, keep in mind that an increase in the exchange rate has a much smaller impact on prices than a decrease in the exchange rate.

Naturally, this change does not occur instantly, but over a certain time lag. For example, in Ukraine it takes 9–12 months for a change in the NBU key rate to have any significant impact on the inflation rate. Therefore, the NBU changes the key rate based on available inflation data. This happens, for example, against the background of rising current inflation or when inflation declines sharply.

The NBU, through inflation targeting, should influence inflation expectations, strengthening the confidence of enterprises and households in its ability to bring inflation to the target level in the medium term.

Only under these conditions does rising inflation not impede sustainable economic growth.

The mechanism for determining the impact of inflation expectations on long-term trends in the consumer price index is as follows:

– enterprises – make decisions on the volume of investments, lending, prices for their products and production resources;

– households – make decisions about the proportions to which their income is distributed for consumption and savings, as well as about the optimal form of savings.

It seems, it is making sense to discuss the monetary policy of NBU and its impact on the business environment in Ukraine, comparing it to the monetary policies of other countries, for instance, like Turkey and China. The NBU's decision to raise interest rates significantly can have various effects on the economy. While high interest rates can help combat inflation, they can also make borrowing more expensive for businesses, potentially slowing down economic growth. It's important for central banks to strike a balance between controlling inflation and supporting economic growth.

The policies and economic conditions of different countries, such as Turkey and China, can vary widely, and what works in one country may not be directly applicable to another. Each country's central bank must consider its unique economic challenges and goals when setting monetary policy.

While developing this model, Mandell [3] didn't overlook the role of inflation in international economics. Contrary to the prevalent theories of Irving Fisher and Abby Lerner, the scholar argued that an increase in the expected level of inflation could be a reason for economic growth. Inflation expectations under a fixed exchange rate encourage the influx of investors who hope to profit from the increasing profitability of alternative assets.

Currency devaluation compels the investment of money into businesses. The inflow of foreign capital and the activity of domestic investors, in turn, can stimulate further production, thereby fostering economic growth.

This economic paradox was named the Mandell-Tobin effect because James Tobin, alongside Robert Mandell, managed to identify the excess of positive consequences of increased economic activity over the negatives caused by high inflation rates [3; 23].

The impact of this effect could also be traced in Ukraine, where high inflation rates and high credit rates encouraged the arrival of foreign banks, paying their European depositors 3–5%, while lending to Ukrainians at more than 20%.

Of course, risks were also taken into account; however, a high margin has the ability to reduce sensitivity to potential economic threats. Throughout the years 2005–2008, the credit boom contributed to active economic growth in Ukraine until the crisis hit.

In the short term, the Mandell-Tobin effect plays a significant role, but in the long term, it is rather controversial. Interestingly, Mandell himself later became an opponent of excessive inflation, noting that the inflation rates during peacetime in the United States were higher than those during similar periods in the First and Second World Wars.

In 1963, Mandell published the article "Capital Mobility and Stabilization Policy under Fixed and Floating Exchange Rates" [3], in which the mechanism of regulating small national economies with high capital mobility was revealed.

The essence of the mechanism is that under a floating exchange rate, monetary and credit policies are effective, while under a relatively fixed exchange rate, stable fiscal and budgetary policies are more effective. For example, reducing interest rates in an economy with a relatively flexible exchange rate usually leads to significant currency devaluation.

As a result of currency devaluation, a country's exports become cheaper on the open international market, increasing the significance of net exports and significantly stimulating economic growth. As a result, interest rates then rise back to equilibrium levels, and the economy recovers.

Mandell concludes that under a floating exchange rate, monetary policy, which involves regulating interest rates, can become a powerful tool for influencing the volume of exports. In this case, fiscal policy is ineffective.

For instance, an increase in government spending leads to an increase in demand for money and, consequently, higher interest rates. As a result, capital inflow from abroad strengthens the currency's exchange rate to a level where the decrease in exports negates the effects of government spending.

Under a fixed exchange rate, on the other hand, fiscal policy becomes more effective because it does not alter the volume of net exports. A similar situation can be observed in China today, where the yuan's exchange rate is so regulated that it can be considered fixed.

This allows the government to maintain economic growth through massive state investments, which would have little effect under a floating exchange rate because a stronger yuan would lead to more expensive Chinese goods and a loss of market share.

Mandell and his IMF colleague Marcus Fleming formalized these logical arguments into a mathematical model named after them. It makes several assumptions, as its conclusions are valid for small open economies with free cross-border capital flows that cannot influence the global financial market.

The key thesis of the Mandell-Fleming model is that under a fixed exchange rate, a country cannot conduct an independent monetary policy. If such monetary policy adjustments do occur, the exchange rate cannot remain fixed in the long term.

From the model, the existence of the "impossible trinity" of macroeconomic regulation is deduced, which is also called the incompatible trio or the Mandell trilemma: free cross-border capital flows, a fixed exchange rate, and independent monetary policy. In the long term, it is impossible to achieve all three goals simultaneously.

In a country with an open capital account of the balance of payments, national policy can only focus on either the external goal – controlling the exchange rate – or the internal goal – regulating price levels, but not both simultaneously.

Expressing adherence to the core principles of the Mandel-Fleming model, the authors believe that an increase in risks and devaluation expectations leads to capital outflow and depreciation of the national currency. To offset these consequences, the National Bank of Ukraine (NBU) is forced to raise the base interest rate. Following this, the yield of all other financial instruments in the capital market increases.

However, at present, an increase in the NBU's policy rate cannot lead to the devaluation of the hryvnia since the exchange rate is fixed. Thus, tension in the financial markets is rising and exceeding all acceptable norms. Moreover, capital outflow is not possible, as all avenues for outflow are blocked.

From all the above, an exceptionally important theoretical conclusion emerges, according to which it is absolutely necessary to return to a market exchange rate when the interest rate is increased. However, it should be noted that with a trade balance deficit of at least 50 billion hryvnias, transitioning to a market, essentially floating exchange rate is akin to suicide.

Thus, the authors draw another important conclusion: if there is no opportunity for currency arbitrage, the movement of the policy rate is absurd, as it does not affect either the exchange rate or capital movement. The circle is closed.

From all that has been said, it can be concluded that the monetary model of the National Bank of Ukraine (NBU) currently resembles the fixed exchange rate policy of the State Bank of the USSR (with a gap between official and cash exchange rates and partial capital movement restrictions). However, can anyone imagine the existence of a policy rate at 25% in the USSR? Absolutely unbelievable.

Continuing the discussion, the authors observe that the absurdity of the situation is well understood by commercial banks. Despite the level of risks and the population's devaluation expectations, banks are not in a hurry to raise deposit rates.

Banks understand that 60% of the population's demand deposits are held in banks with zero interest simply because people consider banks as a means to store money for a rainy day, to avoid carrying cash around the country.

In addition, the salaries of military personnel, on which banks currently earn 25% for themselves, by placing the remaining funds in NBU deposit certificates. And the increase in the policy rate from 10% to 25% has had absolutely no impact on deposit rate increases or changes in the deposit structure towards term deposits and a reduction in demand deposits.

Therefore, a corrupt scheme has been created in the country, in the process of which commercial banks enrich themselves by 120–140 billion hryvnias annually (see Scheme 1).

As a result of the operation of this criminal corruption scheme, there has been an avalanche-like increase in the profits of banks in January-February 2023, against the backdrop of general chaos and a catastrophic decrease in the standard of living of Ukrainians.

It is quite clear that in this scheme, the Ministry of Finance of Ukraine, among others, grants the NBU the right to finance the budget deficit and distribute profits from currency issuance, partially including seigniorage (NBU's income as the difference between the cost of producing money and their nominal value). To what extent this complies with the Constitution of Ukraine is for the reader to decide. The authors reasonably believe that it does not.

Recognizing this, the authors have repeatedly recommended in their reports to the NBU and the Government of Ukraine to significantly reduce the policy rate, which, as noted above, is currently at 25%.

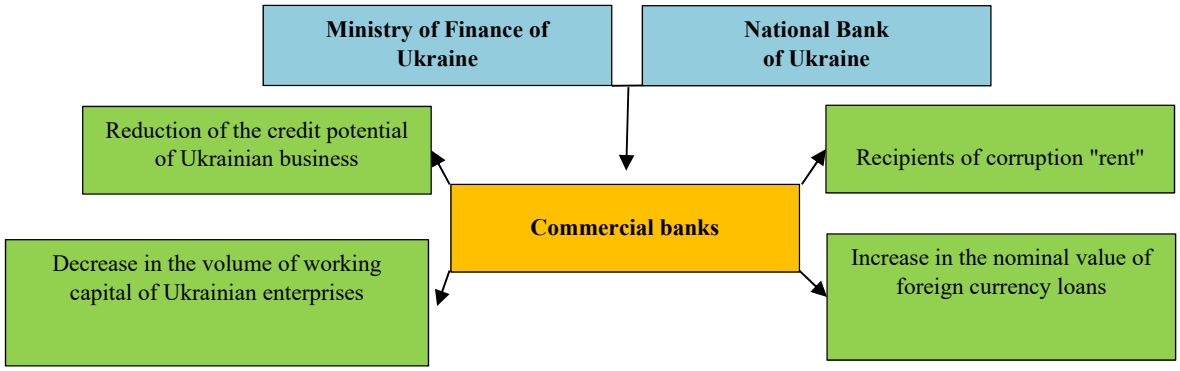

Fig. 1. Formation and distribution of corruption rents obtained from ineffective regulation of banking activities in Ukraine

Source: Designed by authors.

In doing so, as pragmatic individuals in economics and finance, they understand that by reducing, for example, the policy rate to the level of early 2022 (10%), the NBU would cut its income by 2.5 times, including income from government bonds, the interest rate on which is tied, as we know, to the NBU's policy rate. Whether the NBU would agree to this is a rhetorical question.

However, the corruption chain at the NBU does not end there. By reducing the rate (let's say, to 10%), the NBU thereby reduces the income of commercial banks on their deposit certificates by exactly 2.5 times. (See Figure 1).

And the leadership and management of commercial banks are accustomed to living well, living lavishly. Just look at the data in Table 2, which indicate that the net income of commercial banks has grown rapidly this year, increasing by nearly 54 billion hryvnias in the first five months of the year. If the policy rate were lowered to 10%, the authors do not rule out that commercial banks would find that the income from NBU deposit certificates no longer covers their cost base.

As a result of such a reduction, it would be necessary to forego corrupt rent income and seek opportunities for financing in the real sector in order to earn the same 15% that banks lost due to the reduction in the policy rate. In other words, excuse me, banks would have to start focusing on their core responsibilities.

Weak lending is one of the factors contributing to the slow pace of economic development in Ukraine in recent years. This factor, among others, has had an impact on the country's economic growth the Ukrainian economy lapsed into a recession since the beginning of 2014 after the annexation of Crimea by Russia in March 2014 and the consequent war in Donbas that started in the spring of 2014. As a result, Ukraine saw zero GDP growth observed in 2013, shrank by 6.8% in 2014, and this continued with a 12% decline in GDP in 2015.

In the beginning of 2017, the World Bank stated that Ukraine's economic growth rate in the previous year was 2.3%. So, the recession came to its end. *According to the analysis results, despite*

Table 3

Revenues and expenditures of Ukrainian banks (UAH million)

Showcases	January 2023	January – February 2023	January – March 2023	January – April 2023	January – May 2023
INCOME	38 650	65 825	103 984	136 390	171 743
Interest income	23 765	44 436	68 138	91 349	116 144
Commission income	8 307	15 582	23 511	30 960	39 211
The result of the re-evaluation and operation of the purchase and sale	5 932	4 649	10 136	11 190	11 754
Other operating incomes	506	883	1 536	1 940	3 039
Income	76	141	422	501	993
Return of write-offs of assets	64	133	242	451	602
Costs	23 956	44 347	69 928	92 393	118 154
Interest rates	7 245	14 000	21 932	29 942	38 591
Commission costs	3 895	7 487	10 511	14 004	18 398
Other Operating Costs	1 075	2 445	4 278	5 890	7 558
General administrative expenses	6 417	13 202	20 925	28 295	35 500
Others costs	561	1 182	1 755	2 386	3 071
Deduction to reserves	2 488	2 517	3 805	3 359	4 680
Tax on the butt	2 275	3 514	6 723	8 517	10 355
Net profit (loss)	14 694	21 478	34 056	43 997	**53 589**

Source: National Bank of Ukraine [29], calculations of the authors.

this improvement, Ukraine remained the poorest country in Europe, which some have attributed to extremely high corruption levels, slow pace of economic liberalization and institutional reform, particularly, in the state finance and banking area.

In April 2020, the World Bank reported that growth in the national economy was solid at 3.2 percent in the previous year, led by a good agricultural harvest and national economy sectors that depended on domestic consumption. Household consumption level grew by 11.9 percent in 2019, supported by sizable remittance inflows and a resumption of consumer lending. The domestic trade and agriculture levels grew by 3.4 and 1.3 percent, respectively. However, in 2020 GDP fell once again by 4.4 percent as a result of the COVID-19 pandemic.

So, when assessing the Ukrainian economy performance, the data on which is available, then it might be suggested that most indicators, first of all GDP dynamics demonstrated a downsized trend.

Russia's imperialist aggressive war against Ukraine has led to the significant decrease not only in GDP growth rate but to its absolute value. According to data from the State Statistics Service of Ukraine, in 2022 GDP decreased by 30.4% compared to growth of 3.4% in 2021 (see Figure 2). It should be noted that this is the most significant contraction of the national economy since independence in 1991. It is obvious that this decline is the result of the large-scale Russian invasion in February 2022.

This drop in GDP is associated with a reduction in domestic demand, a decrease in capital and labor, a disruption of internal economic relations, as well as the destruction of foreign trade logistics.

As a result of the war, more than 20 percent of Ukraine's population has an income at the poverty level. Unemployment rose to 24.5 percent. Real wages fell by 27 percent in 2022 and 2.5 percent in 2023, according to the International Monetary Fund (IMF). It is obvious that this level of unemployment and the decline in real incomes of the population affect the level of consumer demand and slow down the recovery process. economy.

Inflation rates have accelerated from 10 percent in 2021 to more than 20 percent in 2022. The main drivers of inflation growth were the restriction of domestic and, to an even greater extent, external supplies due to military operations, the destruction of the logistics of supplies of raw materials and energy and the transition to much more expensive types of them, the devaluation of the hryvnia and the increase in the cost of imported goods.

In 2022, the volume of exports of goods and services in Ukraine decreased by 40 percent. Obviously, this contributed to the deterioration of the balance of payments. However, the receipt of international

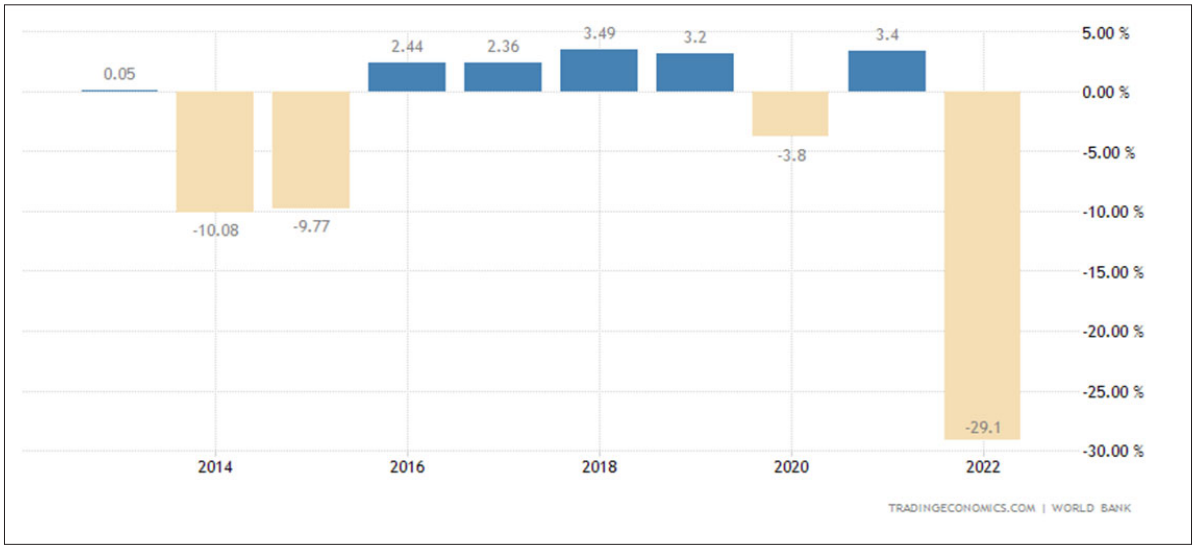

Fig. 2. Real GDP percentage changes in 2014–2022

Source: State Statistics Service of Ukraine [28] and World Bank [33].

assistance, as well as remittances from migrants and the freezing of debt servicing, to a certain extent contributed to the stabilization of the current account. On the other hand, the outflow of foreign capital led to a significant financial account deficit. At the end of 2022, the total balance of payments is negative and reached $5 billion.

The destruction of social, transport and industrial infrastructure caused by the war also puts significant upward pressure on inflation. However, consumer inflation in 2022 performed better than expected. The reasons for this were weakened consumer demand, freezing of tariffs for housing and communal services and a relatively stable foreign exchange market.

As a result, according to NBU data, price growth in Ukraine in 2022 amounted to 16.6%. At the same time, an important factor in maintaining the stability of the national economy was the introduction of a fixed exchange rate for the national currency. This measure helped control exchange rate expectations and ease pressure on the market.

At the beginning of the war, the National Bank of Ukraine temporarily abandoned its flexible exchange rate policy and fixed the exchange rate at 9.25. From July 21, 2022, the dollar exchange rate was fixed at 36.57 UAH/USD.

In January-March 2023, compared with the previous quarter, the country's economy grew by 2.4%. Thus, according to data from the State Statistics Service of Ukraine, Ukraine's real GDP decreased by 10.5% in comparison to the same period last year.

The inflation rate level in Ukraine increased to 0.5% in May 2023 compared to 0.2% in April of the same year. Core inflation slowed to 0.3% in May from 0.5% in April and 1.3% in March. For five months of 2023, inflation in the country amounted to 3.8% with a base rate of 3.3%.

According to the authors point of view, the real sector of the Ukrainian economy significant decrease is a result in a certain degree of the lack of AVAILABLE credit resources.

Certainly, it is quite evident that the process of cleaning up the banking system in 2014–2015 led not only to the destruction of hundreds of banks, mostly with Ukrainian capital. As a result of these two processes (the elimination of the private core of the banking system and the consolidation of the state segment), Ukraine now has a quasi-state banking system: 55% of its assets are concentrated in the four major state-owned banks, 30% in foreign-owned banks, and only 20% in banks with Ukrainian capital.

It's widely known that the volume of new lending in Ukraine has hardly increased (even before the war), and banks are extremely reluctant to provide funding for new business projects, as they profit, as demonstrated earlier, from fees and operations with government securities (government bonds and NBU deposit certificates).

In essence, alongside the absence of monetary credit transmission (where an increase in the money supply is accompanied by a proportional increase in lending), there is an intensification of commission charges on bank clients (such as merchant fees for transactions in retail networks).

The authors believe that when banks choose low-risk strategies over lending, they end up with both risks and a dysfunctional credit system. In other words, there is a closed loop of creating risks through their minimization.

This might sound contradictory at first, so let's clarify: by reducing risks and denying credit to new projects, banks artificially slow down economic development and make it more vulnerable to external shocks, as only the simplest cycles related to exporting raw materials with a payback period of up to six months are promoted. This, in turn, leads to the formation of hidden long-term risks that become active during prolonged global crises.

The authors, to some extent adhering to the Austrian School of Economics and followers of Kondratieff's long-wave cycle ideology, explain the nature of economic cycles based on bank credit activity.

In the understanding of its proponents, crises result from the inefficiency of central bank policy. However, the founders of the Austrian School primarily studied the practice of lowering interest rates and the resulting overheating of the economy. In our case, it's precisely the opposite: a prolonged

period of high interest rates resulting in insufficient, if not critically minimal, utilization of the potential capacities of the real sector of the economy.

But the ideological and institutional basis for all of these extremely dangerous imbalances is the same – the inefficient (if not corrupt) policy of the National Bank of Ukraine.

Prior to the war, the NBU annually transferred approximately 40 billion hryvnias of its profit to the budget, without accounting for seigniorage at all (it was indirectly collected by banks in the form of their income from deposit certificates and, accordingly, NBU's expenses for their servicing). In reality, these funds dissolved within the budget, being beyond control, which encourages and creates a basis for corrupt actions.

However, if the NBU had established an effective lending model and its own transmission mechanism, its profit would have grown several times over, as would the dividends distributed to the citizens of the country.

Conclusions. Assessing the need for credit resources, the authors believe that the total requirements for small and medium-sized enterprises (SMEs) alone amount to $73 billion, with the average amount required for one firm (ticket size) ranging from $30,000 to $300,000 in additional financing. Therefore, the government needs to expand the existing "Affordable Loans 5–7–9%" program. However, the state alone cannot provide the required funding. This is why it is urgently necessary to reduce the National Bank of Ukraine's policy rate and, as a result, increase the accessibility of cheap credit resources.

Another equally important goal should be to attract private investments, as the government and international donors cannot cover all the expenses. In addition, the level of investment should be to increase to 30-35% of GDP over the next 8-10 years, with at least half of these investments coming from non-government sources. An effective way to stimulate investments could be EU support in the form of joint investment funds and guarantees.

In the conditions of war, a significant reason for the lack of funding for enterprises is that they cannot obtain insurance against military risks. Although, as explained earlier, the direct risk to enterprises outside the combat zone is relatively low, military risks cannot be insured. The problem for insurance companies is that since July 2022, international reinsurers do not provide opportunities to insure military risks for insurers operating in Ukraine. The absence of insurance not only hinders the development of Ukrainian businesses and investments but also represents one of the major obstacles to attracting foreign direct investment into the country.

Therefore, the initiation of insurance programs covering such risks is of great importance. However, there are currently no proposals on how to change the situation during active hostilities. An expert group, the Ukraine War Insurance Group, has prepared recommendations for upcoming insurance of military risks, which can be financed by the Consortium Donor Fund under the control of the GoU and under the supervision of the National Bank of Ukraine (NBU) as the main regulator of the insurance market. According to the group's recommendations, the Fund should subsidize insurance of military risks in Ukraine after the active phase of the war ends, gradually reducing the subsidy and completing it within 10 years.

All of the above allowed the authors to draw several conceptual conclusions, the essence of which they outlined in the "Analytical Note to the Government and the National Bank of Ukraine".

Briefly, these conclusions and recommendations boil down to the following.

1. The monetary policy of the NBU significantly affects the interest rate and, as a result, the volume of available loans in the financial system of Ukraine. The ability to gain access to relatively cheap loans, in turn, shapes the volume of aggregate demand of the population and the business.

2. It is quite obvious that the NBU's tighter monetary policy leads to an increase in the interest rate (which, as noted above, reached a record 25%) and a decrease in the volume of lending. which, in turn, led to the aggregate demand reduction. The volume of investment, first of all, in real business has decreased significantly, again, to a record low level.

3. Activities in the financial sector remain relatively attractive, because with such a high current key rate, it is advisable to invest only in financial investments, but not in real business.

4. High interest rates in Ukraine over the past three years have significantly hampered the development of consumer lending, as a result of which, in particular, real estate prices have fallen significantly (up to 40 percent) in both the primary and secondary markets.

5. Taking this into account, the National Bank of Ukraine is recommended to develop and begin to implement a soft or expansionary monetary policy, which will result in a much lower key rate. The implementation of such a policy in 9–12 months, as noted in the article, will lead to an increase in the volume of credit funds, which, in turn, will lead to an increase in investment in the real sector of the economy and consumer loans for expensive goods.

5. Thus, the Ukrainian economy, which is currently experiencing a recession and a drop in GDP, due, among other well-known reasons, to stimulating monetary policy will begin to return to the exponential growth rate that follows the upward Keynesian aggregate supply curve.

6. At the same time, the authors warn that if loose monetary policy aimed at ending a recession crosses a certain line, that is, goes too far, it could stimulate aggregate demand so much that it causes inflation. Which the NBU is quite successfully fighting by targeting its level.

7. Simultaneously, there are concerns that further tightening of monetary policy aimed at reducing inflation will lead to a subsequent decline in aggregate demand and a worsening recession.

8. The main approach to changing monetary policy is, as noted in the article, to change the size of the money supply. The NBU does this through open market operations, during which short-term government debt is exchanged with commercial banks. For example, the NBU buys or borrows treasury bills from commercial banks, adding the proceeds to cash in accounts called reserves. This operation expands the money supply. If the situation changes, the NBU, on the contrary, sells government securities to banks, which leads to a reduction in the money supply.

9. At the same time, the authors draw attention to one more extremely important circumstance. Which comes down to the fact that monetary policy has an additional impact on inflation also through expectations, that is, the so-called self-fulfilling component of inflation. It is quite natural that if the NBU increases the interest rate, the market understands that the bank and the Government are keeping inflation under control and, in the short term, projects a more modest increase in wages and wholesale prices, which, in turn, maintains actual inflation at a relatively low level.

10. The authors note that monetary policy should become a countercyclical tool that should lead to the desired expansion of production and employment with low inflation. In other words, the NBU must balance macroeconomic goals in both price and output.

That is, while targeting inflation, the NBU must also pursue another, no less important goal of stabilizing production and maintaining the economy at a higher level of employment.

11. In this regard, the authors emphasize that monetary policy is not the only tool for managing aggregate demand and, as a result, output. Fiscal government policy is another factor in stabilizing the economy. At the same time, the authors note, monetary policy is usually considered as the most effective and, most importantly, more efficient stabilization component. An exception may be countries with a fixed exchange rate, where monetary policy is entirely tied to the exchange rate target. But Ukraine, as we know, has long moved away from this course.

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DOI https://doi.org/10.30525/2592-8813-2024-spec-3

PRIVATE BANKING & WEALTH MANAGEMENT MODERN PROBLEMS OF THE INDUSTRY. CUSTOMER REQUIREMENTS: IS THE INDUSTRY READY FOR A RESET.

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Abstract. According to the experts' assessment, the modern Private Banking & Wealth Management industry is stagnating. The financial crisis, COVID-19 pandemic, powerful geopolitical changes have influenced the profitability of the industry and revealed the shortcomings that need to get the most serious attention. Challenges include decreasing trust and customer satisfaction with the service and profitability. The world of on-line technologies and digital finance makes demands on both bank employees and customers. Tough requirements from the regulators on the control of financial flows and the introduction of many restrictions, the emergence of new young generations in the market with inherent socio-psychological attitudes and consumer preferences, all this requires assessment by the banking system and adequate proactive response. The research is an analysis of modern challenges and at the same time a search for possible solutions to overcome the stagnation of the Private Banking & Wealth Management industry

Key words: Private Banking, Wealth Management, Digital banking, customer experience, motivation program for private bankers, cybersecurity.

Introduction. In recent decades, the development of Private Banking & Wealth Management business can be characterized as a constant game of "catch-up". It is obvious that the principles and traditions of work laid down over centuries, initially adequate and not sensible conservatism affected the work of the industry [1].

For a long time, traditionalism did not allow digital banking technologies to be introduced at the same pace and scale as retail. The ideology of human communication and privacy prevailed, and emphasis was placed on this very aspect. As a result, a significant gap was created, which was barely bridged by the end of 2020.

Practically the entire last decade, the private equity business has been shrinking its profitability, which has affected a number of aspects: cost cutting, which in turn has led to staff reductions, reduced client offerings and increased risk, and ultimately negatively impacted the level of service itself.

The emergence of new generations, their attitude towards business, staff another source of stress for the industry.

The COVID pandemic and its consequences affected the technology of Private Banking & Wealth Management business significantly.

The modern business model is stagnating. The adjustments brought in slow down this trend, but do not break the trend itself. Change is necessary for growth and development. Are there opportunities for resetting?

Basic theoretical and practical provision. The reaction of the owners of the large private capital to the current changes is interesting/ McKinsey conducted a fairly in-depth and detailed study of the factors that clients identified as fundamental to the performance of banks during the pandemic [2]:

1. At least 25% of customers were not satisfied with the bank's digital readiness;
2. Every fifth customer changed his bank during the pandemic (profitability and digitalization issues);

3. Clients have the most significant fear of digital fraudsters and are not prepared to transfer 100% of their decisions on-line only.

While the global banking industry withstood the peak load of the rapid, unprecedented in its scale, compressed by time transfer of business to the on-line mode, clients were not satisfactory with the level of support from banks in the issues of technical support and investment consulting. About a quarter of respondents noted that their banks and private bankers have not contacted them since the crisis began, a third of respondents were dissatisfied with the quality of investment consulting during the crisis and, as mentioned above, every fifth customer transferred their assets to another bank.

It is obvious that the reasons for dissatisfaction are digital equipment, banks' readiness, quality of service, and, of course, the level of professional support. At the same time, estimating the volume of issues that banks had to solve in an inconceivably short period of time, such as the increasing transaction activity, the issue of the equipment, the issue of communication channels, the operational readiness of specialists and the bank to conduct all transactions in a safe and organized mode, the situation still does not look catastrophic. In this case, the dissatisfaction of some clients is understandable and predictable. On the part of banks in the situation of crisis and peak load in all directions is acceptable.

The study shows that even within the historically most conservative customer segment, which always prefers live communication, the level of use of on-line solutions has reached 80%, with:

1) is still in favour of omnichannel (i.e., combining human and hardware communication) – 71%;
2) are in favour of a complete transition to on-line mode – 25%.

The risk brought by situations – digital fraud. Operational, information security. The growth in the use of digital technologies certainly means an increase in cybersecurity risks. The projected volume of losses associated with cybercrime in 2023 will amount to more than 8 trillion dollars. Experts emphasize that this is essentially the third “economy” in the world after the United States and China. The forecast for 2026 is already a figure of 20 trillion U.S. dollars [3].

One of the pressing issues of the present time is the transfer of Compliance & AML control processes and procedures into on-line and digital format. This is an undoubted stress for specialists of these professions and a challenge for IT specialists and of course for clients. The very implementation of technologies should take into account the possibility of live communication with the client (even in the elementary aspect – to explain the logic of certain documents) and at the same time systematic and efficient execution of the necessary procedures of analysis and control.

What solution and what can contribute to strengthening the position of classical banks – a system of work with clients, which can be seen as training. Explanation of aspects and causes of fraud, explanation of the logic of work and implementation of certain technologies. The challenge is not only in spending money and time on the development and implementation of new technologies. The challenge is to keep the client, his trust in the bank and the employee and the same trust in the new technologies offered.

In addition, the tightening of financial monitoring requirements, the growing volume of new instructions all this affects the time of execution of operations and at the same time narrows the possibilities of the bank in terms of offers to the client. The bank is forced to refuse part of the client's offer, as interaction with individual states or financial and non-financial instruments makes it necessary to pay more attention to legal aspects and control issues. This already affects the profitability of the bank, an issue that will be discussed separately later in this article.

Returning to technology issues, it should be noted that clients expect further development of on-line solutions. This includes security requirements and new technologies such as asset management through specialized artificial intelligence.

In addition, clients have an established demand for operations with digital finance: CBDC, NFT, cryptocurrency. Professional operators have several tasks in this case: to introduce these technologies into the bank's working offer and to train clients to work with these tools. Including explanation of

the essence of these instruments and their inherent risks. If this issue is not so acute for younger generations, it is more than urgent for older generations.

One of the possible solutions to transform the service system of a classic Private Bank is the use of digital technologies, but tied to a more emotional interaction. McKinsey recommends personalizing content and recommendations to clients by using Big Data: information in social networks, demographic data, behavioural characteristics, i.e. applying personalization everywhere: from investment advice to the lifestyle component. The accumulation of information, elements of the so-called Internet of Things makes this possible. The challenge for marketers and customer experience specialists: the offer through digital solutions should provide new experiences, emotions and of course through the former and the latter generate interest.

An important point that comes through in the research and deserves the attention of banking professionals: clients in Europe continue to take social responsibility and social investing very seriously as part of their strategy choices. This is important: even in times of crisis, geopolitical turbulence, and falling incomes, clients are firm on these issues. Millennials and Generation Z have simply changed the structure of the banks' offer and the thinking of banking professionals with their pressure [4].

The task of banking professionals is not only to form a portfolio offer, but also to take into account the aspects of ESG, the United Nations responsible development (responsible environmental, social and corporate governance). What is important, bank professionals are also responsible for controlling compliance with ESG principles of certain issuers, as well as for controlling profitability. At the same time, ESG indexes still have no unambiguous and unified methodology, which may cause confusion and the question of profitability of such investments is not always obvious. Experts agree that such ratings will have to repeat the history similar to the credit ratings of the world's leading agencies. It took more than a decade to reach a consensus on methodology and ratings recognized by the market. In addition, the very focus of investors on responsible business is increasingly leading all companies in the market to seek actively meeting formal requirements. This leads to a greenwashing effect – cosmetic corrections to a company's activities and additional costs for communicating commitment to ESG principles. In reality, the company and its business do not change significantly. The task of control is also entrusted to the bank's analysts.

Sure, there is the eternal issue of profitability. It should be noted here that this problem is a perennial one, and it becomes acute in times of crisis. Taking into consideration that we've been living in a permanent crisis mode for the last decade, the banking industry is feverishly looking for new solutions and new opportunities. This is not to say that it is working out well. For example, McKinsey experts note that as a result of the 2008 crisis, global GDP fell by 1.7% and it took 10 years for the banking sector recovery. In general, the industry in Europe has shown a negative trend since 2018: profitability fell from the figure of 13.5 billion euros to the level of 13.3 billion euros in 2019 and the summary of 2020 will not show the best result. Post-pandemic situation of 2021were expected to show 3.5% drop in global GDP – for the banking industry this would mean a significant decrease in profitability. And of course the "black swan" of 2022 – war in the centre of Europe – was not taken into account. The very process of declining profitability has a constant moral (at the level of management and selling specialists) pressure, which affects the behaviour of banks.

That is why the initial reaction of the banking sector was quite traditional: staff cuts, reduction of administrative costs, etc.

Possible solutions proposed by McKinsey experts and largely already actively used by banks in the EU and Eastern European countries include reducing the number of physical offices of banks.

All this in turn leads to an increased burden on private bankers, fewer opportunities to communicate with the client and, as a consequence, a reduction in the quality of service. Banks and employees are feverishly searching for a solution, the answer is often a race for new clients, selling more risky

clients, pressure on sales clients. The risks for the client are obvious: the desire for former comfort leads to sales in the interests of the bank and the client manager, but not the client [5].

The pressure and growing level of conflict leads to high staff turnover, which in turn causes customer dissatisfaction. It would seem to be a vicious circle. The way out may be innovations that focus on an agile mix of digital solutions and personal communication. Reshaping the segmentation and generational model, while advanced technologies are offered to a greater extent to younger generations who are more predisposed to use them in banking. By doing so, there is an opportunity for more time for the classic generations in terms of their consumer characteristics. One of the recommendations here is to manage this time wisely using it for education and training in the use and control (cybersecurity) of certain digital innovations.

The crisis has forced both the banking system and the client to significantly reduce their expenses. This has led to increased demands from the latter and certain changes in the nature of relationships: a deep and focused approach (client demands that cannot be left unattended). McKinsey research participants noted that their strategy for the near future will be to evaluate their own portfolios and withdrawal from non-core assets and refusal to cooperate with inefficient professional market operators.

The negative thing is that, according to these studies, clients are so dissatisfied with the results and approaches of financial institutions that one of the most demanded services of recent times is the so-called "second opinion". A third-party expert's assessment of a portfolio and the effectiveness of its management. This indicates a significant decline in trust in banking professionals. Generally, profitability is a very cyclical value, it decreases during each financial crisis and grows while the market shows a positive trend. After the crisis of 2007–2009, experts attribute the restoration of trust in banks and managers to the complexity of the instruments offered by them and the dynamics of events taking place in the market, rather than to changes in the habits of the latter. The client simply does not have time to analyse information and make decisions, and the logic of some financial instruments does not understand at all without careful explanation from experts. This is forced trust. But such trust is not endless.

First, clients are increasingly paying attention to the fact that in case of risk events, as a rule, neither the operator (bank or asset management company) nor the manager directly bear virtually risks. Losing a client is probably the most crucial.

Second, clients are demanding greater transparency in charging. Capgemini's annual World Wealth Report 2020 survey indicates that more than 33% of clients who own large private capital (over USD 1 million and more) are dissatisfied with the level of fees [6]. They would prefer a fee structure based not on the amount of assets, but on investment results and overall service quality of both banks and asset management companies. These demands have been increasingly systemic in Capgemini's research since 2017: the client is willing to pay, but understanding *what for* and *how the fee structure is* formed. Clearly, the pandemic crisis has only sharpened these issues and client demands.

Clearly, solutions are needed where there is a partnership in risk sharing and commission principles based on the positive results of the financial partner responsible for managing the client's assets. The bank bears its own costs for building the infrastructure, part of the commission payment is due to this, but the majority of such commissions should be formed by the banking institution as a certain share of the income generated.

Solutions to improve the situation have been proposed for quite some time:

1) entering by the bank's own funds into the strategy offered to the client;
2) formation of dependence of professionals who have formed this strategy and work with it (analysts, managers, private bankers) on its result. Deferred bonus (in the amount of 30% or more of the annual bonus) invested in the strategy.

Such an approach will have the most significant impact on client confidence and the discipline of banking professionals. But how many of you know of such proposals in reality? It is very difficult to break habits and accepted rules.

One of the trends aimed at reducing the cost of commissions on the client side is a preference for brands that can provide services from the perspective of fully working with the client's portfolio of assets, the so-called holistic approach.

Conclusion. New challenges mean new demands on the one hand and new opportunities for transformation of the banking industry on the other: redesigning the operating model, creating cybersecurity systems, a new approach to service and customer experience. The reset will also affect such aspects as staff incentive programs, staff retraining (especially in digital banking and cybersecurity).

Changes in service management should be understood as changes in marketing, analysis of client preferences and positioning of large private wealth management services.

The main risks that will push the banking system to actively seek solutions and transformation are highlighted:

1) Increased workload on private bankers (downsizing) and lower quality of service; emergence of a new generation of customers. The way out: flexible combination of digital services and physical work with the client; change in functionalities and approaches taking into account consumer characteristics of different generations.

2) increasing requirements from the regulatory authorities in terms of Compliance, AML (reduction of the range of services, as it is impossible to take into account all aspects of rapidly changing legislation). The way out: maximum automatization of the process in terms of analysis and decision making, but retaining the option of dialog with the client in case of any clarifications, etc.

3) decreasing customer confidence (striving for transparency in tariffing issues); decreasing profitability of banks, combined with the struggle for personnel, this leads to the risk of sales in the interests of the bank and the manager, but not the customer. The way out: restructuring of the personnel motivation system; creation of a partnership approach in the formation of product offer to the client (profit and risk sharing).

4) growing demands for new competencies and knowledge among private bankers. Customers want personal communication and at the same time new knowledge and competencies. A lunch with a client and a dialog on secular topics are no longer enough. The way out: transformation of the training system, training program for clients and their families.

To summarize, we can say that the banking system simply has no choice, either a reset and work on mistakes will be carried out, or sooner or later banks will lose their dominant role as players in the market of servicing large private capital.

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DOI https://doi.org/10.30525/2592-8813-2024-spec-4

MODERN TRENDS IN PERSONAL INCOME TAXATION IN EU COUNTRIES AND UKRAINE

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Abstract. The article is devoted to personal income taxation is a significant tax instrument to reduce population inequality. Categorizes personal income tax in types: comprehensive income tax, dual income tax, and flat income tax. Gives an overview of the multifaceted factors driving personal income tax reforms in EU countries and Ukraine and demonstrating how they are adapting tax systems to meet the demands of the modern era.

Key words: PIT, comprehensive income tax, dual income tax, flat tax system, tax return, tax administration.

Introduction. The necessarily to choose between achieving economic efficiency and social justice is the main problem that the state faces when taxing citizens' incomes. Equally important is the reduction of poverty and population inequality, which is extremely relevant today, since 59% of people in the world live in countries where inequality is increasing, and only 5% live in countries where it is decreasing [1], and 1% of the richest people in world, own 45.8% of the world's wealth [2]. Achieving greater equity and reducing inequality in society requires redistribution of income, primarily through the tax system. To this end, the design of the personal income tax involves the use of a non-taxable minimum, tied in various proportions to the subsistence minimum, and a scale of incomes, to each step of which a progressively increasing rate is applied. In addition, a modern income tax should contribute to overcoming the important challenges of today, which are the aging of the population, digitalization, globalization, etc.

Basic theoretical and practical provision. Currently, several types of personal income tax systems are used in the world. The choice is mainly influenced by the specificity and historical traditions of the country, the level of its socio-economic development, the mentality of the people and other factors that leave an imprint on the established rules and approaches to taxation of the population's income. Therefore, several types of the population income taxation system are distinguished:

1. A complete or comprehensive system of taxation (comprehensive income tax) of all or almost all monetary income of the population, minus deductions (net income to which the same rates or a rate scale are applied). Such a system assumes that labor and investment income are taxed at the same rates (usually a progressive income tax), and the value of tax deductions increases with the growth of gross income. This system also provides for clear and consistent compliance with the HE and VE taxation criteria.

2. Dual income tax, according to which a proportional tax is imposed on all net income (investment income; wages; pensions, minus deductions) simultaneously with the application of a progressive tax on gross labor income and pension income. This means that labor income is taxed at higher

rates than investment income, and the amount of tax deductions does not depend on the amount of gross income. Taxation of capital at lower rates is used, mainly, to prevent the export of capital and to weaken the incentives to take it abroad.

3. Flat income tax (flat tax system), which is proportional and applies to all sources of income. This means that employment and investment income are taxed at the same rate, and tax deductions do not depend on the amount of gross income [3].

It is important to emphasize that the presented division by types of the personal income taxation system is quite conditional. Its conventionality is manifested in the fact that these types are not used in their pure form in almost any country in the world. For the most part, this is a symbiosis, that is, a combination of two or more types, so in no case should they be perceived as a certain self-sufficient mechanism, the application of which will solve the problem of efficiency or equality and fairness of taxation. There are always exceptions to the system of rules, and therefore such a classification is determined, mainly, exclusively for scientific purposes.

Each of the presented types of personal income taxation system is characteristic for certain groups of countries, which is determined not only by certain tax traditions, the effect of imitating the experience of other states or globalization processes, but also, for the most part, by individual socio-economic conditions that have developed in the country. In each specific case, these conditions or the level of development of economic relations in the country are the main factor that causes it to choose one or another alternative regarding the choice of the type of taxation system.

Thus, the first type of personal income taxation system is characteristic of most EU countries. A special case among the countries are the four Scandinavian countries: Norway, Sweden, Finland and Denmark, which in the early 90s introduced the second type of taxation system – double income tax. For the countries of the Eastern European region, including Ukraine, the third model of personal tax is inherent, which mostly uses one tax rate (flat tax system).

Research findings or data, evaluation of research results. The largest share of income tax in the total amount of tax revenues were in Denmark – more than 56.2%, Finland 41.4% and Italy 39.3%, while on average in the EU it was 35.2%, which is significantly more than was in Ukraine – 31.3%

Fig. 1. PIT including holding gains, % total receipts from taxes without social contributions in 2022

Sourses: Main national accounts tax aggregates (gov_10a_taxag) / Eurostat data. URL: https://ec.europa.eu/eurostat/cache/metadata/en/gov_10a_taxag_esms.htm, The State Treasure Service of Ukraine. URL: https://www.treasury.gov.ua/

(12.4% in 2021) in 2022. The smallest tax shares were in Croatia 11.9%, Bulgaria 13.6%, Cyprus 13.8% and Romania 15.0%.

In terms of the share of personal income tax revenues in GDP, Denmark ranks first among the EU-27 countries – 23.5% of GDP is redistributed with its help. Indicators are also high in Sweden at 13.8% and in Finland at 12.9%. On average, in the EU27 countries, the share of PIT in GDP is 7,9%, and it is the smallest in Romania at 2.5%, Bulgaria at 3.1% and Croatia also 3.1%. In Ukraine, the indicator in 2022 was 8.1% (in 2022 – 2.5%).

A significant increase in indicators in Ukraine in 2022 is due to the influence of the military aggression of the Russian Federation, as a result of which many production facilities of enterprises were destroyed, some enterprises did not work and, accordingly, did not pay income tax, VAT and others. In addition, unprecedented tax benefits were introduced, namely the ability to pay a 2% gross income tax instead of the 18% income tax, and the excise duty on fuel and cars was abolished for a while. Payments to military personnel and, accordingly, personal income tax revenues also increased significantly. As a result, the structure of tax revenues changed and the share of personal income tax in tax revenues and GDP increased significantly.

Analysis of PIT reforms. Currently, the process of reforming the personal income tax continues in the EU countries and Ukraine, the governments are responding to the processes taking place in the economy and society, striving to maximize both the fiscal and regulatory potential of the income tax.

Characterizing the main reasons and factors that determine the need for tax reforms in different countries of the world, it should be noted that they can be classified into two large groups. The first group are objective factors, including: deterioration of the climate; population aging; growing inequality and poverty; the state and development of the economy, digitalization, globalization, and international integration processes in the world. The second group is subjective factors, including: science and new knowledge that influence the formation of ideas about an effective taxation system; the desire of countries to improve and increase their competitiveness.

The most important economic factors affecting the tax systems of the EU countries over the last decade were the 2008/2009 recession, the COVID-19 pandemic and, as a result, the economic crisis. The latter led to increased deficits and public debt, as governments implemented policies to support households and businesses. The post-pandemic recovery was just beginning when Russia's war of aggression against Ukraine had a very significant impact on the energy market, pushing energy prices – and therefore inflation – to extremely high levels [4].

The factor of globalization, increased mobility of capital and people led to the development of tax competition processes. Countries compete with each other both for capital and to attract wealthy and highly qualified individuals who will pay personal income tax. The development of information technology allows working remotely for an employer in another country. These processes have been significantly accelerated due to the restrictions due to COVID-19. Telecommuting from abroad has created new political issues, such as which country has the right to tax or how to allocate the tax base, as people work in several countries every year. In this regard, the principle of tax residency is becoming more and more difficult to apply. [4]. All this affected the design of the personal income tax. In many countries, special rules have been established, which provide for exemption from paying tax on fringe benefits to expat employees from companies related to the move (Luxembourg), exemption from taxation of foreign income (Cyprus). Certain countries have introduced tax regimes for digital nomads, which provide for lower personal income tax rates established by law and actual rates for individuals who are more qualified and mobile compared to others. The most tax-friendly countries in Europe for digital nomads are Greece, Malta, Portugal and Cyprus. If in 1998 there were 5 such regimes, then in 2021 there will be 28 of them worldwide [5].

Digitization led to the emergence of new types of assets, in particular cryptocurrencies and, accordingly, the possibility of receiving income from them. In this regard, some EU countries have intro-

duced a personal income tax on such income, the purpose of which is to promote neutrality between cryptocurrency and other types of assets, as well as increase tax revenues. For example, Hungary has introduced a 15% tax on income derived from certain cryptocurrency transactions (equivalent to a 15% capital gains tax). Austria has also introduced a tax on income from crypto-transactions, according to which the income received from the sale of cryptocurrency is taxed at a flat rate of 27.5% (equivalent to the capital gains tax rate).

In response to demographic changes, including aging populations and a sharp decline in the number of people of working age, countries strive to ensure active participation in the labor market for all, especially women, including mothers of young children, the elderly, and the low- and high-skilled. To do this, states try to reduce the tax burden on low-income earners and "second earners" (i.e. people living in a household where the spouse/partner's earnings are the main income of the household), for whom the tax burden and barriers to work – including through the structure of the tax system – may be higher. To reduce the tax rate of low- and middle-income households and expand the tax base. In some countries, measures were also taken to narrow the personal income tax base aimed at stimulating employment and providing work-related benefits, as well as supporting families with children, especially those with low incomes.

In some countries, measures were also taken to narrow the personal income tax base aimed at stimulating employment and providing work-related benefits, as well as supporting families with children, especially those with low incomes [6].

Taxes reduced income inequality by 6% in the EU in 2021, with varying degrees (from 2% to 17%) across member states. In most EU member states, benefits contribute more to income redistribution than taxes. Lithuania, Portugal, Romania and Italy are among the few countries where the impact of taxation is stronger than benefits [4].

The digital revolution provides new opportunities in tax administration, because the advantages of new technologies make it easier for taxpayers to comply with tax legislation, reduce paper document flow, and for tax inspectors simplify control over tax payment, ultimately reducing state costs for these processes. In this regard, further development of the tax service for electronic submission of personal income tax declarations and their preliminary filling by the tax department is important. This approach involves tax authorities "pre-populating" a taxpayer's account and personal income tax return with information from third parties about deductible income and expenses, such as charitable contributions, tuition and university fees, and insurance contributions [7]. The taxpayer can review the pre-filled declaration, make changes, supplement it with other information and submit it in electronic or paper form. In 2021, this service was provided in 87.9% of tax offices of OECD countries. The relevant declaration is pre-populated with the following information: taxpayer personal data 98%, salary income 86%, pensions 76%, bank interest 47%, dividends 43%, income from capital transactions 31%, as well as deductible expenses, such as charitable contributions 33.3%, university and school fees 27.5%, childcare expenses 23.3%, health and medical expenses 25.5%, pension contributions and savings 47.1%, interest on loans and mortgages, insurance premiums 33.3%, other expenses 33.3% [8]. The taxpayer can either agree to such a declaration or adjust it, as a result of which the tax liability can either increase or decrease. It is worth noting that on the way to 100% of the pre-ordered declaration, a difficult and longtime still needs to be passed, since the problem so far is the receipt of information by the tax authorities about the taxpayer's foreign income and income paid abroad. In addition, in some cases, the place of payment of taxes is decided individually, based on each individual case, in accordance with the bilateral agreement on the avoidance of double taxation. In Ukraine, the approach to pre-filling the declaration is also used, it contains information about all the income of the taxpayer, from which the tax agent paid income tax: in particular, wages and other income from employment, royalties, income from entrepreneurial activity, sale of real estate, dividends, etc. Information about bank interest is not filled in, because banks submit reports to the tax

office about the tax paid on behalf of clients from these incomes in an impersonal form due to bank secrecy. The taxpayer declares income from property lease, capital transactions, as well as incurred expenses independently. An important tool for encouraging declaration is the provision of information about taxpayers' expenses, which allow to reduce the tax liability. In some EU countries, tax authorities allow this to be done not only at the end of the tax year, but also in real time, as expenses arise. For example, such options are allowed in Ireland and Spain.

Modern tax offices also use other possibilities of digitalization, in particular, they use "pushing" methods to quickly fill in certain fields that must be filled in by the taxpayer; virtual assistants to answer taxpayers' queries (for example, chatbots) based on artificial intelligence (AI) and application programming interfaces (APIs). Many tax authorities operate mobile applications, the main functionality of which is to provide taxpayer information, tax reminders and instructions, mobile applications are becoming increasingly functional and are becoming the main way for taxpayers to access relevant records and personal tax accounts, communicate with the tax authority administration, provide information and tax declarations and pay taxes. For example, a similar mobile application was implemented in Ukraine in 2023, with its help you can check the personal data of the taxpayer, pay taxes online through the payment system, Google Pay or ApplePay, order and receive a certificate of income received and taxes paid, submit a tax return about property status and income, etc. All this greatly improves compliance, allowing to increase the timeliness of submitting declarations, paying taxes and ultimately increasing the amount of tax revenues.

Conclusions. Summarizing the main trends of reforms in the field of personal income tax in the EU countries, it is worth noting that they were aimed at reducing the tax rate of households with low and middle income and expanding the tax base and stimulating the relocation of highly qualified workers within the framework of tax competition. In some countries, measures have also been taken to narrow the personal income tax base aimed at stimulating employment and providing work-related benefits, as well as supporting families with children, especially families with low incomes. Digital services are critical for tax authorities to provide improved services to clients, as well as open up new opportunities for service improvement. The largest share of personal income tax is paid for individuals by tax agents. However, in modern conditions, it is not possible to collect all taxes at the source, and yet a significant part of taxes is paid at the time of declaration, therefore, the development of digital services is of great importance for increasing tax revenues. Current trends in tax administration include preliminary filling of declarations, "pushing" taxpayers to fill out declarations, use of virtual assistants based on artificial intelligence, mobile applications of tax authorities.

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DOI https://doi.org/10.30525/2592-8813-2024-spec-5

DEVELOPING PROFESSIONAL DIGITAL COMPETENCIES FOR CRYPTOCURRENCY MARKET BEGINNERS (CASE STUDY OF ECONOMICS STUDENTS)

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Abstract. The purpose of this publication is to draw attention to the importance of forming digital competencies in new users of the cryptocurrency market. The relevance of this problem was determined and practical recommendations were provided. The methodological basis is a system-structural analysis of the essence of cryptocurrencies as digital assets; statistical and economic analysis of cryptocurrency market dynamics and own experience of working with cryptocurrencies. Various ways of storing cryptocurrency, some features of mining are considered. Attention was paid to various options for receiving cryptocurrencies for free, practical recommendations were provided. The materials of this publication can be recommended to users when working with crypto assets.

Key words: airdrop, digital competence, cryptocurrencies, cryptoeconomics, crypto exchanges.

Introduction. Time dictates its requirements. The ability to navigate in the digital space, possess digital literacy, operate with the latest data, analyze and interpret new digital resources, predict possible risks – this is far from complete, but an absolutely necessary list of the formation of modern information and digital competencies.

Digital competence involves the ability to navigate in the information space, receive information and operate it in accordance with one's own needs and the requirements of a modern high-tech information society. Ability to evaluate effectiveness, modify, edit, combine, create new digital resources; analyze and interpret data in different types of digital environments; critically analyze the expediency of their use; to predict possible risks – indicates the possession of a high level of information and digital competence, which implies the confident use of digital technologies.

Digital competence is closely related to information and media literacy, involves the ability to communicate effectively in different contexts, work with media content and create digital content. Digital competence is the ability to navigate in the information space, to search and critically evaluate information, to operate with it in professional activities. It combines knowledge and skills to use existing and create new electronic resources, use digital devices, their basic software; working with operating systems, online services, etc.

Virtual assets open up new perspectives and require new information literacy. Such a branch of economic science as cryptoeconomics needs further study. Blockchain technologies, cryptocurrencies, tokemiki, crowdfunding, SMART-staking, stablecoins, SMART-contracts are the realities of today.

Basic theoretical and practical provision. The involvement of new subjects in the cryptocurrency market should be accompanied by the formation of ideas, knowledge and competences in this

area. This especially applies to certain social groups, strata, which must possess professional competences. For example, we are talking about employees of commercial or government structures related to the cryptocurrency sphere, or potential participants.

Students of economic specialties are a vivid example of this kind of subjects. For a number of areas (finance, in particular), the "Cryptocurrencies" course is included in the training programs, which provides certain theoretical knowledge in this area.

But an extremely important component of such training should be practice. It provides skills, professional competences to seekers of this knowledge.

It should be noted that the practical assimilation of the technologies of the cryptocurrency market is extremely doubtful without real activity, without the creation of one's own crypto wallets, registration on crypto exchanges, and certain types of mining. The start of such activity is associated with certain risks – financial, informational. Questions arise, is it necessary to have a certain amount of cryptocurrency when creating a wallet, opening a crypto account? What information resources (RAM, processor, software, etc.) should a beginner have? What should Internet access be like (completely free, with blocking means)? What platforms and tools should the user have?

Answers to these questions, practical experience should be a mandatory component of the professional training of a beginner in the cryptocurrency market.

These points are not sufficiently explored in scientific works on cryptocurrencies. But they are extremely relevant in the preparation of students of economic specialties, especially financial ones.

This work highlights the main problems that arise when studying the course "Cryptocurrencies", based on personal experience, methods and approaches are formulated, with which you can master the skills and abilities of working with cryptocurrency tools. These methods are outlined in the methodological support for the distance course "Cryptocurrencies" in the Moodle system of the V. N. Karazin Kharkiv National University is its component.

Therefore, the problem of deepening education, spreading knowledge about cryptocurrencies is extremely urgent.

The purpose of the publication is to draw attention to the importance of the formation of information and digital competences in new users of the cryptocurrency market, to determine the relevance of this problem, to analyze the situation and to develop practical recommendations for working with the latest financial instruments, such as cryptocurrencies.

The subject of the study is the theoretical and practical aspects of solving the problem of beginners entering the crypto industry market (using the example of economics students).

The methodological basis of the publication is a system-structural analysis of the creation, essence and legal aspects of the development of cryptocurrencies as digital assets; statistical and economic analysis of cryptocurrency market dynamics and own experience of working with cryptocurrencies.

Getting into the crypto industry is pretty easy right now [1]. The least you need to start using cryptocurrencies is just a browser. You don't even need an email or install separate apps. But this simplicity has a flip side – new and new fraud schemes appear. The easier it is to "enter" the industry, the less a person immerses himself in the study and knowledge of cryptocurrencies, and the less he is protected from virtual threats, and the easier he himself can lose cryptocurrency, due to ignorance, or cryptocurrency. can be stolen by fraudsters.

Cryptocurrency can be stored on crypto exchanges. But not only on crypto exchanges, because new ways of storing cryptocurrencies are constantly appearing. If a cryptocurrency is popular, it will be available on exchanges. To buy and store cryptocurrency, it is enough to register on one of the crypto exchanges and purchase cryptocurrency, for example, using a debit card.

The greater the volume of trades carried out on the exchange every day, the more trust it has from the crypto community.

Usually, to create a profile on the exchange and start trading, you will need an email and a phone number. But you can also connect additional protection methods. When creating an account on any exchange, keep in mind that your funds on the exchange are in its wallets. You don't create your own separate wallet on the blockchain. You do not create a secret passphrase that can be used to recover your wallet without connecting to the exchange. Your funds may be blocked by the exchange or lost if the exchange ceases to exist. This is the main drawback of exchanges.

The ways in which you can buy cryptocurrency are described in video examples on Binance website [2].

Let's consider the details. You can replenish your account on the Binance exchange in the following ways: cryptocurrency deposit (deposit existing cryptocurrency assets via the blockchain); buying cryptocurrency (you can buy cryptocurrency for cash (recommended for new users), bank deposit (you can make a payment deposit from a bank account and then buy cryptocurrency from your cash balance), receiving cryptocurrency (you can easily get cryptocurrency from other accounts)). It should be noted that direct withdrawal of funds from the card on the Binance exchange is temporarily impossible. On some exchanges, you can buy cryptocurrency the same way you buy anything else online, i.e. by direct debit. For example, on the okx.com exchange. Binance now uses a different method, P2P (ie person to person). For example, to buy 0.00097087 BTC, we need to transfer our funds to another person, and then he will transfer the cryptocurrency to our account. Although this method looks quite "strange" to the average person, in the "crypto world" this method of buying and selling is very popular. The security of such an exchange is guaranteed by the exchange itself. You can read more about all the risks and rewards on the Binance website.

We will also pay attention to mining. You can mine and mine cryptocurrency using any computer device: computer, CPU, video card or hard drives, or even a smartphone. Of course, this is not always a profitable business, but it is possible.

The easiest way to start mining cryptocurrency is with ready-made programs that will show you which components of your PC you can mine on and how much money it will bring you. For example, using the Nicehash program [3].

You only need an email to register and start mining cryptocurrency. In addition, with the help of this service, it can be exchanged for common fiat funds, for example, dollars, and withdrawn to your bank account.

For example, an i5-3570 processor can mine about 2-3 cents per day. 80–85% of the processor resource will be used.

You can further develop your mining knowledge and use more advanced programs, miners and operating systems.

For example, for IronFish cryptocurrency mining using several RTX series video cards, it is already better to use specialized mining operating systems such as Hive OS or Rave OS instead of Windows. These systems must run special miner programs, such as lolMiner, which in turn is updated. In this form, miners store a list of versions, for example "1.75". Coins are mined through "ironfish.herominers" pool [4].

Funds are stored not on the exchange, but in a wallet from cryptocurrency developers [5].

Access to the wallet can only be obtained by someone who knows the code words from it, that is, the passphrase. The downside of this wallet is that you need to first update the blockchain on your device to view your current balance and send funds.

Let's consider the latest ways of storing cryptocurrency. The most convenient and, at the same time, quite safe way of storing cryptocurrency is a browser extension, for example, the metamask multicurrency wallet. Additionally, there are single currency extensions such as the Toncoin coin. There are also online crypto wallets that can be used directly in the web version. In general, the industry is moving in the direction of simplification and greater protection of potential users' funds in order to reach as many people as possible who want to use cryptocurrencies.

How to get free cryptocurrency? Let's consider several options in more detail:

1. Crypto faucet – sites that give out cryptocurrency for free to conduct some kind of verification, testing or send a transaction. On such sites, you can get a few satoshis if you enter your address there [6].

2. Crypto-airdrops are held from time to time – distribution of cryptocurrency if you have performed some actions or registered a wallet and so on. Always individual quests [7].

An airdrop in the cryptocurrency business is a marketing ploy that involves sending coins or tokens to current or potential users to increase awareness of a new virtual currency. Sometimes you need to perform some actions, after which you can receive a reward, for example, follow the project accounts in social networks and share their publications.

With the number of new coins constantly increasing, it is difficult for investors and traders to keep track of new projects. Thus, some crypto projects offer airdrops to raise awareness. “Freebie” is liked by everyone, so it is often used by fraudsters. You should always do your own research. DYORDYOR (Do Your Own Research) is a very common phrase in the cryptocurrency world that reminds us that you should never blindly trust any information or investment advice. Each person must make their own decisions after weighing all the information and being aware of all the risks. before signing up for any airdrop, especially when you need to connect your wallet to a website.

There are different types of airdrops, but they usually consist of a small amount of cryptocurrency distributed between several wallets (usually on the Ethereum or BNB Chain blockchains). There are also projects that distribute NFTs instead of regular cryptocurrency, but this practice is less common.

Some projects give out coins with no strings attached, while other projects force users to complete certain tasks before receiving a reward. These tasks often include following social media accounts, sending out newsletters, or keeping a minimum amount of coins in your wallet. However, receiving tokens via airdrop is not guaranteed.

3. There are online games by playing which you can get cryptocurrency examples.

Running on MacOS and PC, Spells of Genesis is a free-to-play card arcade game that lets you collect collectibles that are stored on the Ethereum blockchain. They can be exchanged for other artifacts or sold for cryptocurrency.

You can play EOS Knight on smartphones and browsers. This is a knightly saga whose collectibles are stored on the EOS blockchain. They can be exchanged in-game and traded using smart contracts.

Altcoin Fantasy is an educational platform that will help you learn how to trade and also give you the opportunity to earn from it. Here, the user is given virtual points that can be used to trade digital coins. The interface is close to the work of real exchanges.

Altcoin Fantasy runs various trading contests. If a novice trader succeeds in taking one of the prize slots, he can claim a prize in Bitcoin and other cryptocurrencies such as Ethereum and Stellar. The game is free, works on iOS and Android systems.

4. Learn and earn.

Crypto Learn and Earn programs reward users with free cryptocurrency simply for reading crypto materials, watching videos, and answering questions about what they've learned. Most platforms have some training and educational materials about blockchains and digital currencies, but only a few exchanges allow you to earn bitcoins or other cryptocurrencies in exchange for your time.

These methods are used by almost all top exchanges: binance, okx, whitebit and others.

5. Referral bonuses of crypto exchanges.

This method is very popular among crypto industry newbies, students, as well as multi-accounting people.

Referral programs sometimes require referred users to complete a certain amount of transactions before the user receives a bonus in the form of free cryptocurrency. Coupons and other rewards may also be awarded as part of these referral bonus programs.

In most cases, referral bonuses are available for a limited period of time and may include different reward formats depending on the referred user's trading volume. Referrals must use this link or referral code to deposit and trade cryptocurrencies. The more users you attract, the more bonuses you will receive.

For example, the Bybit referral program offers up to $500 in bonuses for you and your eligible referrals. If you have a large circle of friends, a referral bonus is a great way to earn rewards quickly and even combine earnings with profitable betting.

Practical recommendations:

1. Creating an account on the exchange is absolutely free. This operation does not require any costs. Likewise, account registration on any other exchange will be free.
2. When registering on the exchange, you do not need to install any programs and extensions. All actions are performed directly in the browser (Chrome, Mozilla and the like).
3. When registering on the exchange, you do not need to copy the blockchain – the blockchain is stored on the servers of the exchange. This is the advantage of crypto exchanges.
4. When registering on the exchange, it is not necessary to give access to the account to anyone. Keep them only for yourself, do not pass them on to third parties. Access to the account is usually carried out through the login and password, which will be entered during registration.
5. When registering and using the exchange, you do not need additional access to software, a processor, or a video card. Any interaction with the exchange, including buying, selling, transferring or storing cryptocurrency, does not require additional resources of your computer. These steps can be done using a computer, laptop, phone, or an app on your phone.
6. After registration, there will be no funds in your account. But anyone can send you cryptocurrency from their Binance account. Cryptocurrency can also be purchased or replenished in other ways (mining, purchase from a credit card, transfer of cryptocurrency from other exchanges or wallets).
7. You can use the created account even without funds. Of interest – you can view the exchange rate of various cryptocurrencies on the graphs, you can read/take free training on using the exchange, the processes of buying/selling currency, trading, etc. It is also possible to study in the Ukrainian language, binance supports the Ukrainian interface.
8. The minimum account replenishment amount is always individual. It is indicated on the deposit page, after selecting the cryptocurrency and the network to which the cryptocurrency will be sent.
9. If you register on the nicehash.com platform, you need to install an app (only this app, all miners will be installed automatically) [5].
10. After installing the program, the program itself will tell you whether mining is possible on your device and will offer to automatically install the appropriate miner programs. Usually, the user just clicks on the buttons little by little – then he agrees.
11. As for the load on the computer, Nicehash programs, it is usually insignificant, since the program has a lower execution priority than other user commands. Therefore, if your PC has 2 or more cores, it will be usable even with the miner running.
12. At the end of the installation, the program will select the optimal miner and show your profitability in bitcoins.

Therefore, economic operations with cryptocurrencies require certain information and digital literacy. Future specialists in economic cybernetics must be able to use digital services, devices and their software, technologies for their professional communication, for professional development; work with different types of data; take care of the protection of personal data; be able to check the reliability of sources and the reliability of information; avoid dangers in the digital space.

Conclutions. Thus, the key to the successful entry of new users into the crypto industry is the formation of high-quality digital professional competencies. Entities-users of cryptocurrencies must have knowledge about understanding the essence of cryptocurrencies, the principles of emission of its

various types, the infrastructure of the cryptocurrency market, their impact on traditional currencies, the banking system, real business, etc. provided with fundamental theoretical knowledge regarding the implementation of blockchain technologies, the organization and functioning of distributed ledger technologies, virtual exchanges and the cryptocurrency market, knowledge that is relevant and in demand in the market.

The materials of this publication can be recommended to all new users of the cryptocurrency market.

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DOI https://doi.org/10.30525/2592-8813-2024-spec-6

CENTRAL BANK DIGITAL CURRENCY (CBDC) AS A THIRD FORM OF MONEY: KEY RISKS AND DEVELOPMENT DIRECTIONS

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Abstract. Digital innovation in finance (FinTech) is driving the cryptoasset and cryptocurrencies industry creation, which in turn leads to faster and cheaper payments. Following private digital finance, a regulated currency is emerging – the Central Bank Digital Currency. The development of CBDC has the potential to transform the entire global economy in the long term, reducing existing costs and stimulating its growth through market access to a wide range of participants (IMF, states central banks, ECB). However, such benefits can only be realized if there is a properly designed and regulated CBDC implementation procedure, developed technological and legal protocols and rules. Critical issues will be cybersecurity, compliance with accepted AML & KYC controls, education and training of clients and society in general. There is a need for a strategy of transition to the active use of the third form of money while taking into account the interests of all players involved (at least the client, banking institutions, the state represented by the central bank) and preserving micro and macroeconomic stability.

Key words: digital money; cryptocurrency; central banks; risks; banking system; payment system; Digital economy; Legal regulation; National cryptocurrency; Blockchain; Independent payment system; CBDC crypto assets; Blockchain technology; AML ("anti-money laundering"); KYC ("know your customer").

Introduction. Globalization processes combined with the rapid development of digital technologies are changing the paradigm of the money market and its infrastructure in the most significant way. Without even noticing this, each of us is a citizen of a digital state: we have our ID Cards, which include biometric data. We are not talking about classical countries, of which we become citizens at birth, but about "countries" with billions of "residents – citizens", who are fare from being poor: Facebook, Instagram, LinkedIn, etc.

According to statistics, each of us spends a significant part of our time in the virtual space of these states, comparable to life in the real world. Virtual states have been actively progressing in terms of new technologies and this development has resulted in an ambition to create financial structures. The most ambitious attempt was made in 2019 by the leader of Facebook: the digital currency project "Libra", which attracted 27 world-class professional financial players (Visa, MasterCard, eBay, Uber, Spotify, Booking.com and others). The project itself, in addition to the obvious ambition and professionalism of the "union of twenty-eight" contained several other revolutionary ideas: linking the rate of digital currency Libra to a currency basket (US dollar, euro, yen, British pound sterling); the possibility of buying digital currency for any currency and the possibility of using Libra for settlements both online and offline. Libra was expected to become the primary means of payment for the 2 billion

people living on our planet. A few years earlier, the company gained experience in the Facebook Coin project, which was successfully implemented in India (about a million participants).

Of course, this couldn't help but worry governments and their central banks: it literally raised the question of loss of control on their part, in fact the question of their very existence. That is why a couple of months after the official presentation of his project, Mark Zuckerberg testified for six hours in the U.S. House of Representatives. The result was the closure of the project. But later, the "union of twenty-eight" united under the new name Diem, the logic of the project has not changed much, except for one important thing: the currency basket disappeared, and there was one reserve currency – the U.S. dollar. This, in turn, displeased EU regulators, who accused the project of threatening financial sovereignty and antitrust laws [1].

It should be noted that, in general, the reaction of political elites and government professionals was unanimous: authorization of the project and creation of a digital currency similar to Libra will lead to the creation of the largest, universal and no one (of existing states) under the control of the Central Bank.

The Gram project by Telegram leader Pavel Durov failed also.

Did that stopped those who are commonly referred to as the FinTech industry? Obviously not. The most powerful player Amazone continues its operations with cryptocurrencies and developments, for example, and it should be assumed that the "Union of Twenty-Eight" continues to work in the direction of digital currency and just waits for the right time – the process is irreversible [2].

The risks for the states and their monetary policy, and first of all for such centres as the USA and the EU are obvious. The right reaction was an attempt not to oppose, but to lead the movement of development and implementation of a new model of finance. A third form of money – digital finance, CBDC (Central Bank Digital Currency) – is emerging on the world stage.

Basic theoretical and practical provision. Money is a familiar everyday attribute of any economic system. We are used to paying with banknotes, so-called fiat money (from the Latin words flat – will and feducia – trust, confidence). This form of money is a thing of the past. For example, while in 2008 in the UK, 60% of payments (by volume) were made using banknotes, in 2018 this has fallen to 28% and is predicted to fall to 9% by 2028. Countries such as Sweden and Norway are further ahead in this trend: in Sweden, more than half of retailers expect to stop accepting cash payments by 2025. See. [3, p. 14]. The reason is the so-called electronic money: since the mid-90s of the last century they have been replaced by payment cards, wire transfers, and on-line wallets of various banks.

The XXI century has brought digital money: digital currencies, cryptocurrencies. The cryptocurrency market is actively developing. There are already more than 2 thousand types of privately issued digital currencies. Thus, the most popular of them are: Bitcoin, Ethereum, XRP, Bitcoin Cash, Litecoin. The capitalization of cryptocurrencies and cryptoassets is growing exponentially [4].

In fact, digital finance has opened up almost limitless opportunities in terms of development, it is already actively transforming not only financial institutions and instruments, but also leading to a qualitative revision of existing technologies and relationships in the financial sphere. At the same time, cryptocurrencies have emerged as private money and the prospect of their widespread use, as already emphasized, poses the threat of a "digital medieval" with its uncontrolled issuance of various private virtual currencies and forms of crypto-assets. Therefore, central bank authorities are careful not to encourage the growth of uncontrolled development of digital finance. In order to counteract possible negative consequences, one of the most pressing issues at present is the feasibility of creating and putting into circulation central bank digital currencies (CBDC).

The reaction of some countries was predictable: a complete official ban on cryptocurrency transactions. Others, on the contrary, have intensified their developments in the field of CBDC creation and implementation. At the same time, the irreversibility of the processes has already been accepted by

central banks: even despite the generally negative tone of the Financial Stability Board (FSB) report for the G7, which notes that global stablecoins pose a threat to the global financial system, it is stated that the main obstacle and challenge is the lack of elaborated and resolved regulatory and supervisory risks. In fact, a list of immediate tasks for regulators has been defined, the fulfilment of which will lead to the widespread use of cryptocurrencies [5].

In the meantime, states are actively working on ways to maintain control over their financial systems. Since 2014, the People's Bank of China has been actively exploring and implementing Digital Currency / Electronic Payment (DCEP). In 2020, only 35 countries have launched or are considering the implementation of CBDC. In 2022, there were already 114 such countries. There are a number of CBDCs launched by the Bahamas (sand dollar), China (e-CNY) and Nigeria (e-naira). They are often intermediated by commercial banks and cooperate with private suppliers of wallets, which limits the controllability of their management. The effectiveness of these projects not quite high. And they are very slow in accepting by clients, regardless of the resonant launches [6, 7].

In China, many stores accept e-CNY payments. A total of 13.6 billion yuan ($2 billion) was in circulation in January. Although 261 million wallets were created before the beginning of 2022, only 100 billion yuan ($14 billion) were made in the period beginning with October 2020 up to August of 2022. The reason, by words of some Chinese clients, is that Alipay and WeChat Pay are working well, so many retailers do not work on implementation of the electronic yuan [8].

Ukraine also has its own project "e-Grivnya" [9]. Central Banks of 114 countries, which provide 95% of the world's GDP, are currently investigating the implementation of their own cryptocurrency (CBDC). Since 2020, their quantity has tripled (at that time only 35 countries were considered)

CBDCs are digital financial assets issued by central banks. The main difference between CBDCs and traditional fiat money is that CBDCs stand for central bank obligations expressed in existing units of payment that can serve as means of exchange (settlement), store of value and method of payment, i.e. perform all the functions of fiat money, but operate on the basis of blockchain technology.

Currently, 60 countries (more than 55%) are at the stage of implementation (development, pilot or launch). Status as of September 2023:

– 11 countries have already launched their CBDC (Bahamas, Jamaica, Nigeria, and the Eastern Caribbean States).

– All G7 countries have moved to the CBDC development stage.

– 18 G20 countries are in the final stages of CBDC development.

In 2023, more than 20 countries are planning to launch the CBDC pilot project. In particular, Australia, Thailand, India, and South Korea. Rather even the ECB.

The motivation to implement CBDCs differs and depends on the level of their economic development. In the more developed countries, the aim is to reduce transaction costs, increase the speed of monetary flows and reduce monetary and fiscal policy.

What is the difference between CBDC and cryptocurrencies? CBDCs are centralized state finances, while cryptocurrencies are decentralized private finances. They are not the same, but they can use the same infrastructure for their own purposes. The more developed the infrastructure is, the more efficient will be the functioning of all three forms of hryvnia. Many people ask why the digital hryvnia and not the Bitcoin? After all, since 2009, Bitcoin has a sufficient credibility and it stands firmly on its technology in the world? Today, it is very risky to use Bitcoin in the country due to the voluntariness of this cryptocurrency. The centre of the capacity of cryptocurrency is the issue of consensus, by which all decisions are made. This does not allow the regulator to guarantee the safety and security of cryptoinvestors' assets [10].

In fact, digital currencies are the third form of money, which will be added to cash and non-cash fiat money. It should be noted that the money that currently exist in the banking system is in such an "operational unpaid lease" with the central bank, in the process of which the NBU as regulator, con-

trols and maintains the liquidity of commercial banks through financial institutions, and they in turn serve the customers – in cash or non-cash. Today, the digital economy is being serviced outside the bank system through decentralized payment instruments – cryptocurrencies which are outside the law in the in the most of the countries. Payment of taxes remains the dream of the tax authorities. The time has come for the central bank to have its own digital currency, which will remain on its own balance, and allow the digital economy to be returned to the legal field, provide additional guarantees to the cryptoinvestors and citizens for the protection of their rights and obligations at the level of the state.

The Central Bank will conduct settlements in digital hryvnia, as by the System of electronic payments (SEP), which currently already introduced in the National Bank and conducts settlements between banks and their customers. However, the CBDC will have its own signifier, the characteristic of which is not retail transactions, but digital wallets. In order to become a client of the National Bank of Ukraine and have your own wallets, you will have to download the NBU app in your smartphone. Today about 90% of bank clients are in ID-bank, so it will be easy and quick to get a wallets for digital hryvnia. Your own money will be permanently located in the National Bank. A clear method of cooperation we find between the Digital Wallet and the Diya, where you can place your digital wallets from the NBU and make your digital fully functional profile of a citizen [11].

The advantages we get in comparison to the cash and non-cash money, when we use CBDC [12]:

1. As all digital wallets are held on the National Bank's balance sheet, the cost of servicing will always be much lower than that of financial intermediaries or commercial banks that transfer payments to each other.
2. High transaction speed for fund transfers.
3. CBDC will reduce costs for currency conversion, maintaining bank accounts, servicing bank-client systems, and so on.
4. 100% guarantee of state protection for the funds held in your digital wallets (unlike conventional cryptocurrencies created by private individuals, the circulation of CBDC is carried out on the basis of a state decision).

However, central banks' digital currencies have negative aspects as well:

1. Lack of anonymity. This characteristic is one of the main features that has led to the popularity of private cryptocurrencies, its absence carries the risk that CBDCs will not be so popular among the population.
2. Cybersecurity.
3. Insufficient user training. The introduction of digital currencies requires skills and abilities to use technical means that provide access to relevant settlement instruments, as well as financial literacy.
4. Expansion of the range of customers (transition from the model of interaction with commercial banks to a multi-user audience) is a reason of a significant increase in operational risks for central banks.
5. Difficulties in complying with the AML/KYC principles.
6. Replacing commercial bank (RCO) functionality with blockchain, and the resulting complete collapse of bank revenues.
7. Difficulties in p2p (peer-to-peer) credit system and determination of interest rates.
8. Deterring competition and threatening financial stability if users suddenly lose confidence in digital currency.

The banking system is always conservative in its essence, and therefore, it restrains the growth of high-tech business in our country. While 20 years ago the profession of a banker was considered prestigious by itself, and to be a banker was enough, but today a banker is not just a banker, he is 80% financial technologist, who is doing his best to keep the bank on the market and to ensure the profit level on which its shareholders insist. In addition, the opposition to the launch of the digital

hryvnia may be the bank system itself, expecting the loss of part of their customers and their profit. The majority of citizens rather want to keep their money in the digital wallet of the National Bank. This is important because the Ukrainian society shows low trust in banks, taking into account the fact that in the period of 2014–2017 a great number of banks went bankrupt and a lot of people lost their savings.

Neither commercial banks nor the state is ready for digital currency implementation. Banks are not in a hurry to develop infrastructural projects related to digital currencies for the following reasons:

– the need to finance the projects development, the results of which can be used by the banks-competitors;

– problems of cooperation with other banks, with the single purpose of dividing the costs of innovative development;

– the absence of highly qualified specialists in the own staff;

As for the state itself, it should be noted that in connection with the implementation of CBDC, there are discrepancies with the NBU regarding the following issues:

– authorization of digital money emission and choosing bank-participants;

– organization of regulation and circulation of digital currencies and CBDC;

– solving the problem of risks in the NBU's electronic payment systems.

One of these risks that should be considered precisely is cyber security. There is a problem of ensuring a high level of safety and security of digital money, that is the problem of digital currencies and CBDC fraud. There is a stable perception that the infrastructural digital currency systems can be introduced into the sphere of retail payments only for illegal purposes: the money laundering, tax evasion, the unauthorized organization of gambling (electronic lottery, e-gaming, etc.). It can be assumed that the criminals may try to find ways and possibilities to use digital money for anonymous transfers of cash acquired illegally. In addition, there may be attempts to falsify digital money (unauthorized emission), various types of fraud or system failure of the digital currency infrastructure and CBDC. Thus, despite the existing potential, the widespread implementation of CBDC should be based on a balanced monetary policy that ensures the sustainability of the country's monetary system and the stability of the national currency.

There are no single CBDC standards and models in the world. The basic criteria that can be used to classify CBDC into separate types are [13]:

1. Architecture or functional purpose:

– wholesale CBDCs (wholesale, commercial or direct);

– retail CBDCs (retail/general purpose).

2. Type of access or degree of anonymity:

– token-based;

– account-based.

3. Profitable or non-profitable:

– non-interest-bearing or basic CBDCs;

– Interest-bearing CBDC (I-CBDC).

CBDC is also a technology. And while it may be convenient for one country, it doesn’t mean that it will be useful for another. As a matter of fact, the Bahamas were the first to switch to CBDC in 2019 through a catastrophic problem with the banking system. The current banking system did not solve the problem of collecting taxes, control over budget revenues and expenditures and all the problematic issues of monetary policy. The country has more than 400,000 citizens living on more than 100 islands, and it is physically impossible to provide banking services quickly. As a solution, in 2019 a pilot project with digital currency was introduced, and in April of 2020 this platform was put into operation. Nowadays, many countries are working on the technology of electronic money and report on the results. For example, China has been successfully introducing the digital yuan for 2 years

already, giving its citizens digital tokens to use for paying utility bills, subway rides, and purchases. The digital money is also functioning in a test mode.

It is expected that as soon as the first five technologically powerful countries declare their readiness to join forces to implement digital currencies and make payments through CBDC, digital technology will prove its economic efficiency (increasing the speed and reducing the cost), and its implementation will be faster.

The United States was ready for the introduction of the digital dollar even before the previous president. The Federal Reserve planned to issue the first digital currency in 2020 and start testing the digital dollar. The U.S. Congress held hearings on the advantages and disadvantages of digital money. However, the problem has become that a lot of cash in USD is outside the United States, which complicates its regulation and control. Besides, today the US Congress does not share one universal idea of the digital USD. The problem of the lack of legal regulation of the stablecoins, which today are often used as a means of stabilization of the volatility of cryptocurrencies and the loss of fiat money for businesses and citizens, has been added to this problem. First of all, it is necessary to introduce stablecoins into the legal framework in order to prevent the loss of money by citizens, financial losses of enterprises and defaults in the banking sector. Today there is an illusion that anyone can have and use Stablecoins, and their security can be conditional or not secured with fiat money for 100 hundred percent.

In the future, this problem may destroy the entire banking system on the shovel, so today the U.S. gives priority to the correct regulation of Stablecoins, and then renew interest in the digital dollar.

Conclusions. It is obvious that technological development cannot be stopped, that is why central banks are actively working on the implementation of CBDC. It can be assumed that despite all the existing difficulties, the leaders of "digital states" have not given up their own ambitions. For example, despite the forced abandonment of the Libra and Diem projects, Mark Zuckerberg recently announced the creation of a new metaverse. His intentions to return to crypto wallets in his social network became obvious. As a result, we got another new challenge to the banking system, which most likely will be forced to promptly react.

In addition, global uncoordinated scaling of CBDCs, and even more so of private cryptocurrencies, will create (in fact, is already creating) problems and risks related to financial stability, monetary policy, safeguards to prevent money laundering and terrorist financing, and risk protection for consumers and investors.

The reason lies in the essence of both solutions. The difference between CBDC and cryptocurrencies is that the latter are forms of decentralized or private money. There is nothing new in private money. The money of the commercial banks is created and widely used to in our life. All the money of the banks is tied to the central bank and is strictly regulated and controlled. Today, the growth of cryptocurrency requires full regulation, compared to the risks they are already creating or may create in the future.

Central Bank Digital Currencies (CBDCs) are a proprietary payment instrument supported by the central bank, they are transparent and stable, which allows to remove all kinds of risks from cryptocurrencies . CBDCs can facilitate our economical growth by making payments efficient and cheap. The middling nature of the CBDC payments will reduce the cost of production and trading on the stock and commodities markets, and also help to achieve the objectives of the fiscal and monetary policy by providing the consumers with the money for direct transfers to stimulate consumption.

In this case, it is necessary to solve a whole set of problems already outlined in the article, namely:

1) propose a solution for the commercial banking system, as it would obviously be in a very hard situation loosing of a whole range of operations and consequent profitability;

2) development of technological standards and legal norms that allow gradual and controlled implementation of new technologies without creating crisis.

3) cybersecurity issues
4) issues of preparing clients, bank specialists to use technological innovations and accept them.

One of the significant problems is the differences in financial regulation of different countries, attitude to cryptocurrencies and CBDC. It seems logical if the work on a global project, which will take into account the basic standards of legal, cybersecurity, technological will be carried out by the united countries – financial and technological leaders.

This will hardly stop countries from implementing their own projects, just as it will not stop the development of private cryptocurrencies. Moreover, we should expect a large blockchain-controlled system of decentralized finance in the future. But this is a question of customer trust, the efficiency of the CBDC system, its regulation and control, its convenience and financial attractiveness for the customer.

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DOI https://doi.org/10.30525/2592-8813-2024-spec-7

THE IMPACT OF DIGITIZATION TOOLS ON THE INTELLECTUAL DEVELOPMENT OF THE COUNTRY'S POPULATION

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Abstract. This article extensively explores the utilization of digitization tools. The primary focus is on the experimental investigation of respondents who use digitization tools and the impact of the population's skills on their continued use of digital tools. Additionally, the article emphasizes the importance of finding effective models, mechanisms, and tools for the intellectual support of innovative development among users.

Key words: digitization, digitization tools, intellectual development.

Introduction. The global turbulence that has swept the world has compelled businesses in Ukraine and other countries not only to adapt to new realities but also to expedite their journey into the digital space. Challenges such as the COVID-19 pandemic, financial instability, and military aggression have served as a stimulus, prompting companies to explore new opportunities in the online environment and initiating the process of digital transformation. The shift to e-commerce and electronic services proved to be a key element in adapting to these new conditions. States and companies actively invested in digital marketing, implementing innovative strategies to engage and retain customers' attention.

Let's highlight key aspects underscoring the importance of digital transformation for the economic landscape: online sales channels and e-commerce, digital marketing, automation and cloud services, resilience to change, and innovation creation. Digital transformation has become not only a response to the challenges of global upheavals but also a strategic direction for enterprises, contributing to sustainable economic development and adaptation to changes in the modern world.

The subject of deeper examination is the tools of digitization, which determine the success of the digital transformation of enterprises and the economy as a whole. It is important to note that digital transformation is not just the adoption of technologies but also the creation of a corresponding cultural environment within each business. This becomes a key factor in ensuring the resilience, efficiency, and profitability of enterprises, which, in turn, defines the economic situation in the country as a whole.

Basic theoretical and practical provision. Digital transformation strategies formulated by national governments indeed appear as a key tool in implementing effective digitization policies. These strategies become popular as they define general directions for society as a whole. However, it is important to note that they often remain general and do not provide specific measures to support digital transformation for small and medium-sized enterprises.

It is crucial to strengthen research and identify specific measures to support digital transformation. This may involve creating tools aimed at reducing barriers for small businesses to use digital technologies, as well as providing financial incentives for their implementation [1, 2, 3]. This technological development encompasses countless technologies at various stages of maturity.

Digitalization is a key trend at various levels, such as activity, organizational processes, and ecosystem levels, impacting industries and going beyond traditional frameworks. At each of these levels, digital transformation creates new opportunities to enhance productivity, efficiency, and logistics

resilience [4]. Investments in technology and collaboration play a crucial role in facilitating information exchange and improving coordination and cooperation. However, in a highly competitive environment, this can also pose a challenge, sometimes perceived as a stumbling block [5].

Alongside new opportunities, significant economic questions and issues arise. Coordination and collaboration aspects become key focal points. By analyzing from the perspective of game theory, conceptual foundations can be developed to allocate benefits and costs, considering organizational perspectives [5].

The contemporary "digital turn" begins with the concept of an information society, challenging the notion of "big data" in the current stage of knowledge-based economic development. This raises doubts about the attributed advantages of "big data" in the modern economic landscape. In the next stage, authors analyze the current wave of digitalization in the context of long waves of economic evolution and changes in techno-economic paradigms. This indicates that digital transformation is an integral part of broader economic processes and structural changes that contemporary society undergoes [6].

Evaluation of research results. During the experiment, respondents from Georgia, Azerbaijan, Armenia, Moldova, Ukraine, and European Union countries, including Latvia, Lithuania, Poland, Slovenia, Slovakia, Estonia, Czech Republic, and Hungary, participated. The overall analysis indicates that the level of digital technology skills in Ukraine is significantly lower than in European Union countries.

No more than 25% of the population in Azerbaijan and Georgia demonstrated at least "standard" digital skills, which is approximately half the level of more developed countries. Ukraine also faces challenges in this regard, where 53% of the population has digital skills below the basic level, and 15% do not possess any digital skills at all.

About 34% of the population in Armenia lacks even basic digital skills. These data indicate the need for active measures to improve digital literacy and develop technology usage skills in these countries.

Let's conduct a study on the age group that uses digital services in Ukraine. Table 1 presents the survey results.

Table 1

Use of Digital Technologies by the Population of Ukraine

Variable	Frequency	Use digital services	Percentage (%)
Gender			
Female	500	423	84,6
Male	500	308	61,6
Age Bracket			
17–35 years	250	250	100
36–49 years	250	243	97,2
50 -59 years	250	175	70,0
60 + years	250	63	25,2

Source: Author's own development

During the research, it was found that individuals aged 50+ face difficulties in using the digital capabilities of the market, and those belonging to the age group 60+ practically lack the skills to use digital products provided by the state. The main reason for this is the lack of sufficient digital literacy. These individuals may find it challenging to use modern gadgets, have limited financial means to use advanced technologies, and are unable to utilize government programs, such as Diia, which provide convenient access to all documents through one tool.

This issue is particularly relevant for the target audience aged 16 to 70, which was studied through a survey of 1000 respondents. To improve the situation, it is necessary to develop and implement educational programs on digital literacy and ensure the accessibility of modern technologies for all layers of the population.

The obtained results indicate significant differences in the methods of assessing the digital skills of the population among the studied countries. The assessment is most often carried out based on quantitative indicators of the use of digital technologies in education and internet services, while less attention is paid to indicators such as the integration of digital technologies. In this context, it is revealed that Ukraine and Georgia include more than 50% of basic indicators, while Armenia and Moldova record less than 30%. It is important to note that most measurement methodologies do not comply with European Union standards.

The use of digital tools and methods opens up wide opportunities for companies to improve processes in all aspects of their activities. An essential aspect of digital transformation is attracting new customers. The application of digital marketing strategies, customer data analysis, and service personalization enable companies to attract and retain their target audience. Improving relationships with suppliers becomes possible through the implementation of digital platforms for supply chain management and process automation.

Moreover, digital technologies contribute to the creation of flexible business models, reducing capital expenditures through the use of cloud computing and task automation with artificial intelligence. This opens up new perspectives for companies, allowing them to be more adaptive and competitive in the market.

Conclusion. Examining the impact of digitization tools on the intellectual development of the economy, researchers initially focused on the concept of digital instruments in a relatively narrow context, limiting it to communication tools such as telephone communication and SMS messaging. However, given the rapid technological advancements, it is crucial to consider not only communication but also other aspects of digital innovations, such as fast and reliable next-generation networks like 5G.

The results of the experimental study of respondents revealed age groups in the population that utilize digitization tools and the influence of the population's skills on their continued use of digital tools. The importance of finding effective models, mechanisms, and tools for intellectual support of innovative development in users was emphasized. The conclusion of the study supports the hypothesis of a potential impact of digitization tools on the intellectual development of the economy, with a focus on its intellectual aspects.

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DOI https://doi.org/10.30525/2592-8813-2024-spec-8

HUMAN OR TECHNOLOGY: THE FUTURE OF CUSTOMER EXPERIENCE IN PRIVATE BANKING & WEALTH MANAGEMENT

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Abstract. The Private Banking & Wealth Management industry is one of the most conservative and restricted spheres. It is slow to innovate and often strives to achieve security, risk control, back-office process excellence and compliance with ever-increasing regulatory requirements. However, nowadays this industry needs innovation more than ever. First of all, innovation in the field of attracting customers, creating and maintaining relationships with customers and establishing a better customer experience. Everything in the world is changing – from the nature of money and transaction technologies to the sociology and psychology of clients. Trust is fundamental, same as two hundred years ago. In this study, we will examine how thanks to innovations the most valuable asset in business – namely relationships with clients – are preserved by private banks and wealth managers.

Key words: Private Banking, Wealth Management, Affluent, Mass Affluent, Premium Banking, business model, customer experience, employee experience, innovations.

Introduction. Banks and other affluent industry players face many challenges. Financial crisis 2008-2009, large-scale acquisitions, increased regulation around the world, market volatility, emersion of new service channels, emergence of new asset classes, pandemic, declining margins, inflation, turmoil in the digital asset market, changes in geopolitics, Russian aggression against Ukraine – it's hard to believe that all of these has occurred in 15 years only. Crisis events force wealthy clients to think and look for new ideas for creating and saving their capital, reevaluating their financial goals and life aims. This also has implications for the delayed retirement of older wealthy clients and the transfer of wealth to younger millennials, who are 80% likely to turn to new wealth managers.

At the same time, the Private Banking & Wealth Management industry has enormous "tech debt" and faces devastating competition from fintech companies and non-financial players who have learned to understand their clients better.

In fact, today's challenges are being felt throughout the financial services industry. Companies are actively transforming their business models to survive and grow. We are convinced that competition in the future will only be possible in the field of customer experience: the Internet and digital technologies make products transparent and identical, so competition in functional qualities is impossible.

Changes also take place in the life priorities and values of wealthy people. Knight Frank analysts published the annual report The Wealth in January 2023 [1]. It contains a lot of interesting information about the preferences of wealthy people. For example, respondents identified the following as the most interesting areas for investment:

1. Real estate sector (47%).
2. Technology (33%).
3. Capital market (28%).

Classic business tools for managing large capital took only the third place.

Here's our view of what's coming next in the Private Banking & Wealth Management sphere and what leaders can do to stay ahead of the competition.

Basic theoretical and practical provision. The KPMG company in the document Future of Wealth Management 2022 describes three business models with an analysis of their prospects, success factors and risks separately for each region for the coming years [2]. These business models best fit our vision and experience and help shape the strategies for asset managers.

All three future business models are based more on matching customer preferences rather than focusing on wealth. Each has unique characteristics and success factors, making it difficult for any organization to participate in all three models at once.

The first model is the most realistic and widespread, so we will dwell on it in more detail. We will talk over the customer experience that business models should shape, without delving into the product and processes and we will show the specific features of the regions.

First model: The financial well-being provider.

It's a relatively simplified (but not simple) model. A retail bank plays a major role in achieving clients' life goals and financial well-being. Typically, this model is chosen by universal banks, where there is Private Banking & Wealth Management or Premium Banking division in the retail banking structure. Many banks don't have dedicated Private Banking and are limited to offering Premium Banking, which in fact is just a retail product in a premium package. The architecture of such a product is a solution from an international payment system (Visa, Mastercard etc.) with additional services and a loyalty program. This product is often targeted towards the Mass Affluent and Affluent segment. The challenge for a bank is to create value for the customer at minimal cost.

To succeed in this business model, providers must become popular brands. High awareness inspires confidence. Many wealthy clients choose this model because of the simplicity and access to digital technologies that provide uninterrupted, secure service at a low cost. The modularity of the product allows the integration of digital and human resources. Successful companies will be able to combine the best of digital technology and personal physical contact using a scalable, standardized approach to product creation and delivery.

Operational efficiency in this model is often linked to economies of scale and is of paramount importance.

For example, clients in the Asia-Pacific region are most receptive to digital innovations that help them securely manage high-growth capital. A reliable and popular brand is a success factor in America. Clients in Europe and the Middle East are content with standard services and access to advice. All regions are consistent in their commitment to partner with trustworthy brands that share their environmental and social values.

Second model: The domestic wealth manager.

Those who choose this model are targeting relatively sophisticated HNWI and Ultra HNWI customers who value strong trusting relationships, personalized products and attention, physical contact supported by digital technology. Products will include advice and solutions in various areas such as taxation, financial planning for the family, ideas for an investment portfolio, education, medicine, jurisdictions, legal support, etc. Players can be independent or work under an agreement with banks and position themselves as "trusted managers" of their clients' fortunes for several generations.

Unlike the First Model (The financial well-being provider), these players will serve more complex and individual requirements of the clients. These are truly wealthy clients – they are reach enough to have particularly difficult tasks. It is important to have a strong country or regional level brand and clients-entrepreneurs, preferably generation lasting. The service is highly personalized and supported by digital technology. Clients interact in the way that suits them. This may include a variety of activities and connecting the client to a wide range of offerings for personal, professional and business needs.

The Asia-Pacific region has 15 million HNWIs. The second largest concentration of such clients is in the United States. Even young investors strive to a high level of personalized service.

The challenge for model 2 (The domestic wealth manager) is searching for qualitative differences from the first business model at ever-increasing technology costs. This model also requires a fundamentally different staff. The quality of service and customer experience is formed through the competence of managers, and digital tools just support managers, but do not completely replace contact.

Third model: The global investment expert.

A state-of-the-art wealth management segment with global reach for the exclusive, wealthiest and most sophisticated clients. Providers benefit from reliable advice and transactions, cross-border interests.

This model is for the elite from the very best. Consultations include topics on taxation and regulatory changes in different markets, geopolitics, control over money laundering, etc. Overhead costs are very high. Given the range of services, the entry threshold is extremely high.

Companies must have global capabilities and experience in the world, have intellectual leadership, experience in foresight and forecasts. Clients have global financial and business interests and demand a flawless experience. Asset managers must have large-scale operations in global financial centers and cross-border capabilities.

Costs and management difficulties, regulatory risks, cross-border taxation is the prerogative of a relatively small number of global financial institutions, family and multi-family offices.

An analysis of the implementation of these models in different regions should be carried out:

1. Asia-Pacific region

In Asia Pacific, managers operate in an unprecedented five-generation market. Many young clients from China, Hong Kong, Singapore, South Korea have become rich through their own efforts, which characterizes their profile and expectations. Having assets located around the world they face low rates, so they are looking for better solutions to generate income and protect their families in a changing world.

Implementation of digital technologies in Asia takes place across all age groups via using of platforms and instant messengers to access financial services. Millennials are looking for personalization in self-service, managing their finances themselves and operating in the stock market. At the same time, these tech-savvy clients require training and counseling as they don't have sufficient experience due to their age. Retail investors, including a growing segment of wealthy employed women, are demanding access to the same investment strategies provided to the wealthiest clients. There is a growing demand for advice on a wide range of products according to KPMG, including alternative and more 'sustainable' assets, ethical investments. According to KPMG, more than two-thirds of investors are planning to focus at least 10% of their portfolio on ESG. Clients also invest in cryptocurrencies and virtual digital assets [3].

As asset management in Asia Pacific becomes commoditized, attracting broader mass market, providers have to implement automation and algorithms. At the same time, clients continue to seek interactive analog-to-digital communications with their asset managers.

Banks in Singapore is a good example of how local players are blurring the lines between regional and global asset managers, providing digital simplicity and versatility at a time. In fact, they are combining all three business models. This is possible due to a large number of tech-savvy young customers who are ready to experiment and innovate, and who appreciate a high level of transparency in digital channels.

The pandemic has increased the focus on health besides financial gain. Asset managers, pension funds and insurance companies, even neo-banks are increasingly releasing Lifestyle products, sometimes providing better financial terms to clients with healthier lifestyles. Confidence and trust are becoming key factors as clients seek businesses that align with their values and are committed to ESG investing.

To thrive in a highly competitive regional environment, many providers are consolidating or entering into alliances to expand digital capabilities. The partnership includes FinTechs and other providers that can quickly deliver advanced digital products and services at an affordable price, creating an ecosystem around the customer.

As consumers demand personalized self-service options with access to an advisor, asset managers will likely explore innovative ways to promote education of making informed decisions for clients.

2. EMEA region

The pandemic has updated the request for migration to online services, online shopping, and remote employment. Using data that is needed when making decisions is more critical issue here than in other regions. The industry is being challenged by neo-banks operating exclusively online. Profitability is declining. The economic growth rate is low.

Clients choose relatively standard secure services, consultations and self-service.

Providers working in Model 2 (The domestic wealth manager) offer more personalized, emotional relationships that help build client confidence and trust.

Experts working in Model 3 (The global investment expert) provide unique, sophisticated services, products and expertise at regional, national and global levels. However, they make more effort to overcome the restrictions and meet growing regulations than to serve the customers.

In the UK and continental Europe, with the exception of Switzerland, national players more often become The financial well-being provider or The domestic wealth manager.

Greater integration between investment companies and banks is also expected, as banks control the largest share of the asset management market and now are facing a low interest rate environment combined with excess cash flows.

Within the framework of The financial well-being provider and The domestic wealth manager models, there is a movement towards hybrid services to provide remote global investment advice to the mass market, as Credit Suisse did. Europe is experiencing increasing complexity of data exchange and use regulations.

3. Middle East

Traditionally, personal connections and communication were of great importance in this region. However, in recent years there has been an increase in the share of digital interactions. Also companies operating in the field of Islamic banking are attracting young investors who are prone to digital scenarios.

In response to increasing economic uncertainty, clients are seeking to manage risks more effectively by integrating portfolios with regional and international assets for greater security. Clients are planning the wealth transfer to next generations.

4. Africa

Alliances of asset management companies with digital platforms and fintech companies are being formed to serve clients in an underdeveloped market and to achieve rapid large coverage. For example, in 2021, the leading insurance group and asset management company joint forces with the mobile operator to launch digital investment product. This makes it possible to bring to market a full range of products available on the phone all over Africa.

Studying the regional specifics of building a business with asset management allows you to find interesting ideas for your companies. Often ideas for breakthrough strategies and products come from other markets.

Here the analyze of work on creating and managing customer experience should be carried out. Different business models form differentiated customer experience and attract different customers.

Customer experience is a complex concept, shaped through all types and channels of interaction. The experience will be positive, or better yet, outstanding, with companies that systematically work to create and manage customer experiences. Customer experience distinguishes companies, espe-

cially when it is almost impossible to stand out with rates and tariffs. Additionally, clients compare the experience they receive from different providers with the best practices they have ever had anywhere else. It makes it really hard for banks and financiers, because an experience with a cruise or an amusement park, a luxury brand or airline is likely to be more varied and memorable than a boring and functional experience with a bank. Traditionally banks have been built around processes and security – which is primarily important for business.

Increasing customer centricity as a strategy is indicated as one of the priorities. According to the study Future of Wealth Management (KPMG 2022), client-centricity is in 2-3 place among top strategic objectives of wealth managers in the region [4]. There are interesting features in the "top" for different regions. For example, in the USA and Asia, customer centricity is in second place after "improving service reliability, corporate resilience, and cybersecurity posture". However, next in the US is "improving business efficiency and using analytics to inform business decisions". In Asia, customer centricity is followed by "cost reduction". The importance of implementing customer-centric strategies traditionally has the greatest importance in Asia – 34%, in the USA – 32%.

The situation in Europe is slightly different: the implementation of a customer-centric strategy is only in third place with an indicator of 28%. In general, Europe is more concerned about regulatory challenges, climate and socio-environmental issues than other regions. This largely corresponds to an older and less ambitious wealth population.

The division by region is very arbitrary and reflects only the most generalized features. You should not completely rely on them when creating your strategy. We will analyze these features in order to "recognize" our clients in them.

What do all regions have in common? There are several wake-up calls for those who care about their condition: individual dependence on pension savings and responsibility for retirement, dependence on non-financial assets, actualization of inheritance transfer issues to the next generation, significant financial stability. Despite these and other challenges associated with falling revenues in the private banking and wealth management industry, there is great optimism because today's professionals are playing a key role in the financial well-being of an increasingly wide range of clients of different age and wealth levels.

Advisors strive to take the place of the "chief advisor" in clients' lives and not just in financial sphere. Attention to products fades into the background. There is an increase in "value" requests, when clients demand that their managers comply with their life values. This is especially true for the youngest and most ambitious clients. Young clients have a whole life ahead of them, they are more romantic, concerned about social, ethic problems of the modern world.

Digital technologies are being introduced everywhere to service and maintain relationships with clients, but new ideas are not always well received when they are aimed at reducing providers' costs at the expense of service quality. Providers are striving to make their business more efficient – this is a top priority in all regions. This movement is enabled by the digitization and standardization of processes which clients want to see as completely personalized and customized.

Digital technologies were driven for several years by the emergence and rise of digital assets. The current state and volatility have reduced the "digital euphoria".

The pandemic has taught clients and managers to work anywhere in the world under any conditions, to be always in touch and make quick decisions. Asset managers are now working to harness the potential of clients being "digitally literate".

A recent 2023 Global Asset and Wealth Management Survey from PwC found that 46% plan to switch wealth management providers or enter into a new wealth management relationship in the next 12 to 24 months, or both [5].

Over the past three years, 39% of respondents said they had already changed and/or established additional relationships. This switch is strongly pronounced among wealthy investors under the age of 55, especially those aged 18 to 34.

Many questions arise in connection with the aging of the "boomers" and the upcoming transfer of fortunes to young, ambitious heirs as millennials begin to inherit the wealth accumulated by their baby boomer parents. By 2030, $68-73 trillion could be transferred from baby boomers to millennials [6], claims the 2022 Bank of America Private Bank Study of Wealthy Americans.

Will the heirs' capital remain under the management of managers who served their parents? The average age of a financial advisor in the United States is 53, and most studies show that 80% or more of heirs will seek a new advisor after inheriting their parents' wealth. In Asia Pacific the industry is younger. Our Singaporean colleagues noted that the younger generation almost radically does not want to be served by their parents' consultants.

Many of the millennials will not just inherit capital – they have already learned how to earn money themselves. New capitals have a completely different nature, same as the economy in which they were created. This will increase the need for technology-enabled services. Millennial expectations are also likely to stimulate further demand for investment in new asset classes.

Attitude toward investing differs markedly across generations, causing delays in the transfer of wealth across generations, creating new challenges for financial advisors.

Having lived through the financial crisis and the current volatile economic downturn, young generation is questioning the transparency and reliability of traditional financial institutions. So, young investors:

1. Do not believe in the high returns of traditional stocks (75%).
2. Seek success in various asset classes (80%).
3. Almost half (47%) have cryptocurrency assets and pay more attention to companies that correspond to their ideas about sustainable development and social justice.

For example, 73% of millennials have "sustainable" investments, compared to only 21% of older clients. When it comes to philanthropy, only half of young clients support the same ideas as their parents.

97% of young clients said that financial literacy is important, and 38% noted a lack of educational resources.

Besides ambitious youth, wealth among women is increasing significantly. This adds even more ethical and value issues. There are more clients who choose to invest in organizations that share their commitment to more just and sustainable world. Wealth managers must align their mission, values and behavior accordingly.

Since many senior professionals are getting ready to retire, new ones are urgently needed to replace them. KPMG states that there is a diverse talent pool outside the Private Banking & Wealth Management industry [7].

As always, understanding of customer preferences is critical. Approaches to customer segmentation are always more difficult than they might seem. Different customer segments require different levels of digital solutions, balance of technology and physical contact. They also have different ideas about what personalization is.

Analysis of many studies shows that various criteria for segmenting wealthy clients have been applied around the world and several segments have been identified. Let's take data from the McKinsey European Private Banking Survey reports as an example; McKinsey Global Banking Pools; McKinsey Asia wealth management post-COVID-19: Adapting and thriving in an uncertain world [8, 9, 10].

1. Mass Affluent 100K-250K.
2. Affluent 250K-1M.
3. High Net Worth Individuals (HNWI) 1M-25M.
4. Ultra HNWI >25M.

The Mass Affluent and Affluent segments engage 50-60% of total assets.

As we can see, the range of wealth sizes in each segment is very large. There are regional differences as well. There are no uniform standards for segmentation models even in individual markets.

Take, for instance, the HNWI 1M-25M segment. The clients who find themselves in this segment with capitals from 1 to 25 million are completely different people. Their needs and aspirations will vary greatly. We see the same in other segments. Therefore, providers more often choose The financial well-being provider model, which is more focused on the Mass Affluent segment with relatively homogeneous and simple requests.

According to a KPMG study, the main criteria for customer segmentation are [11]:

1. Wealth profile – 74%.
2. Risk tolerance – 61%.
3. Age (generation) – 52%.

Classifiers related to clients' lifestyle appear much later:

1. Life stage – 41%.
2. Customer interests (hobbies, activities) – 40%.
3. Gender – 21%.

This shows that asset managers continue to consider their clients as assets, without paying much attention to what these people make money for.

Understanding the lifestyle and preferences of customers would allow to offer relevant products the most effectively and be a valuable partner in achieving life goals. And also assess the required level of digital interaction, acquiring online/offline balance.

Segmentation based on lifestyle can mix customers from different segments. For example, the most passive ones from HNWIs in Europe and the US can be quite content with standardized products for Affluent, getting everything they need. At the same time, active and ambitious young Affluent will have access to sophisticated products created for the UHNWI audience, making them even more ambitious. We are seeing this in the Asia-Pacific region through the introduction of digital services. Therefore, we recommend that consultants and managers in emerging markets study East Asian experience.

In order to qualitatively differentiate services for different categories of clients and effectively use the corresponding levels of digitalization, Singaporean banks OCBC, DBS, UOB, for example, may have 3-4 separate business units for wealthy clients. They separate not only the Private Banking and Affluent segments, but also distinguish 2-3 subsegments within Private Banking and Affluent, plus additional service lines, for example, young investors, Chinese investors, Islamic banking, etc.

Boston Consulting Group, in its Global Wealth 2021 study, claims that client income in Asia will grow faster than any other market in the world, almost doubling over the next 5 years to $52 billion. Asia is also becoming a larger hub for cross-border transactions. In 2023, Hong Kong, as the largest financial center of cross-border transactions, will overtake Switzerland, encroaching on its 200-year leadership [12].

Thanks to Asia's "wealth factory", asset managers are turning their attention to a large and untapped market. It consists of people who have relatively simple investment needs and limited financial literacy. These clients have wealth ranging from 100K to 3M. BCG calls them the "simple-needs segment".

Clients with capitals up to 1M are of particular interest since they receive very little attention. And 3M clients often suffer because asset managers offer them too standard set of products. The result is low level of personalization and featureless customer experience with no wow-factor.

BCG claims that the "simple-needs segment" has 331 million people, owns $59 trillion, and has the potential to generate twice as much in assets for managers [13]. But to conquer this segment, a radically different segmentation based on a deep understanding of the client's needs and lifestyle is required. Service can take place mostly remotely, but the client should have a feeling of care and personalized attention from the manager. Not only products, even terminology requires simplification. There is a need for educational content. Thanks to non-financial terms, visual materials, infographics, video tutorials, and gamification, you can convey complex concepts and help make decisions con-

sciously. Nowadays ESG-related products are getting more popular among customers. Providers can therefore digitally highlight relevance of their offerings to this trend, for example by visualizing the carbon footprint of a client's portfolio. Just like airlines do.

The managers' efforts to improve the client's literacy will be perceived by the client as personalized attention. Content can be posted not only on financial portals and provider channels, but also on third-party sites. Customers should be able to "dive" deeper into product features simply by opening new tabs. Each client will receive the necessary depth of awareness that he considers sufficient to make the right decisions.

Such practices should be implemented to simplify pricing. Traditionally, clients complain about lack of transparency. Complex pricing structures irritate clients and are often perceived as hidden fees, even if they are reasonable and fair from the point of view of the asset manager. New models may have a hybrid structure, combining asset-based pricing and subscription fees. Clients with a capital of less than 1 million should be completely transferred to subscription. This multilevel pricing system would reflect the customization rate that is widely used in other industries. It also gives asset managers greater predictability of earnings.

Commonly, an asset manager's ability to devote time to any given client is limited by the operating model and personal preferences. Digitalization will help overcome such limitations.

BCG identifies "The Five Sources of Client Friction", each of which can be significantly reduced through digitalization [14]:

1. Excessive product complexity.
2. Lack of cost transparency.
3. Limited financial literacy.
4. Lack of engaging experience.
5. Lack of personalization.

Employee experience will be critical in competing for wealthy clients.

On the other side of the phone line from a wealthy client is an asset manager or private banker. He also gains his experience – employee experience. These people and the companies they work for deserve an equally detailed look at the challenges they face and a conversation about the resources they need to keep up with their customers. Customer experience directly depends on employee experience. The ideal situation is when the client and manager have such close and productive contact online and offline that they receive a common experience, the highest level of trust and confidence in the correctness of decisions. In this section, let's look at how the work environment of managers is changing and how their experience is being formed.

Several years ago, my company carried out a project for a Private Banking office in Prague, Czech Republic. The space for wealthy clients is located on the ground floor of the bank's head office. On the floors above there are various departments, including all of the bank's management. Typically, banks seek to minimize costs for back-office space, giving preference to luxurious client areas. One of the main principles that were adopted in our project is identical approach in organizing space, design, selection of furniture, etc. for client areas and all back-office areas. The quality of the space for clients and employees is at the same level. Firstly, the staff really appreciated this approach, realizing that this bank respects employees and creates a high-quality, motivating and developing work environment. Secondly, wealthy clients saw that the space for them was organized according to the same principles as the other areas and concluded that the staff was not only valued, but also more competent than in other banks. Clients noted that the staff work conditions are important for them as they feel a greater degree of "partnership" during interaction.

Similar approaches should be used in organizing workplaces, interaction scenarios and IT support for this interaction.

Deloitte's study The future of wealth management revisited, 2020, provides several recommendations, within which it notes that clients increasingly perceive experience, rather than products, as a differentiating factor when choosing an asset manager [15].

Back in 2017, Deloitte formulated the expectations of asset manager qualities from clients [16]:

1. Sentient, intelligent, and highly engaging.
2. Human, modern, transparent, and trusted.
3. Highly automated, frictionless, integrated, and collaborative.

Conducting research every year, Deloitte claims that customer demands are constantly growing, increasing the requirements for managers.

In fact, the work of managers focuses around clients' life goals: education, real estate, retirement and healthcare. By now, it has become an industry standard for banks, insurance companies and asset management companies.

For example, the same infrastructure and workplace can be used by a manager and a client. A manager can switch his computer or tablet from “advisor mode” to “client mode” and present information or create plans and timelines with the client, trying out and comparing multiple options as they build a portfolio. When the best solution for a customer comes from co-creation and shared experience, it has more of importance and is more credible.

Thanks to seamless integration, the manager can see his “managerial side” of the client’s digital application, plans and events in the client’s life – in order to interact on time, when it really matters. Unified platform and technology.

These are just a couple of examples of how attention to staff affects employee experience and customer experience, ultimately improving business performance. We used similar techniques in different markets – in the UK, the Philippines, Ukraine and other countries and saw similar results everywhere. Asset managers need help building partnerships. And the importance of this goes up as the size of assets under management increases.

Wealthy clients require more attention and contact, so now they can choose whether it will be personal physical contact with the manager, remote contact with the manager through digital channels, full self-service, including receiving advice using technology without direct involvement of the manager. However, unlike retail banking and many other services, in Private Banking & Wealth Management, behind all these scenarios there is trust in the brand and credence in the manager. The more challenging times are; the more important personalized support is. At the beginning of the pandemic, when financial markets collapsed, worried customers cut off the phone lines of contact centers. Many independent investors were affected by panic and sold their shares. Those with professional advisors generally continued to invest despite the storm. Human contact and personal trust were more important than ever. Although many people lost their jobs and income, the Wealth Management industry managed to weather the storm, and the life-threatening situation even led to an increase in products related to retirement planning and inheritance products, creating opportunities to attract a new generation of clients.

There is an interesting opportunity to evaluate and analyze a new vector of digital technologies application. According to many researchers, we are about to see not only huge state transmission to a new generation, but also the movement of approximately 70% of interactions and transactions to self-service as a result of customer rejuvenation [17]. At the same time, customers expect a higher level of service from companies through simple, convenient solutions for mobile devices and a seamless online/offline experience. Automation can speed up customer responses on portals, reduce errors, increase transparency, and provide analytics to customers and managers in order to improve the customer experience.

The 2022 WealthStack Study from Wealth Management IQ / Informa Connect argues that banks and wealth management companies don’t invest enough in technology to attract and retain clients,

instead giving preference to internal and back office processes [18]. Historically, business technology strategies have not served the customer experience.

The Financial Times, in its article Choosing a wealth manager in the post-Covid world, reflects on how technology can help clients and their managers [19]. It is stated (using the UK market as an example) that when serving clients whose wealth is below £250,000; it becomes increasingly difficult to provide personalized advice in a cost-effective manner. But technology helps reduce costs by running semi-automated services with very limited human support. Robotic consulting services allow banks and wealth management companies to promote services to lower segments. Lloyds Bank, JPMorgan Chase, UBS are working on this. Only companies serving clients whose wealth is approaching £5 million can fully provide "human" service, attracting the most trained and highly paid staff.

Conclusions. The conclusion of the study is clear: relationship is the most valuable asset. It is impossible to imagine the Private Banking & Wealth Management industry without a high degree of trust between providers and clients. It is also impossible to imagine future without technologies, which are already present in every area of customers' lives. There are three approaches that characterize companies in introducing innovations to solve problems and achieve business goals [20]:

1. Innovators are the firms that invest in technology to differentiate the organization and provide the best possible customer experience.
2. Operators invest in technology largely to improve operations and internal efficiency.
3. Laggards are firms that do not prioritize technology or leverage it effectively.

It is noteworthy that these three types of companies invest in innovation with the same activity, only with differences in priorities. They also state a desire to increase investment in 2023 and beyond. We will see how the conservative Private Banking & Wealth Management industry learns to implement and use innovations. Wealthy clients will demand this because they are already receiving the best service they deserve and are able to pay for in many different areas of their lives.

As always, the financial industry has many restrictions. One of the tasks of technology is to make customer journey exciting, and the employee journey easy, allowing all participants to focus on achieving goals rather than overcoming limitations. Asset managers and private bankers are those who will become guides and assistants in achieving the life goals of wealthy clients. Technologies will complement human contact, making it even more meaningful.

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DOI https://doi.org/10.30525/2592-8813-2024-spec-9

MOBILE GAMES MARKET TRENDS IN CONTEXT OF EXPERIENCE ECONOMY

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Abstract. Mobile games are one of the most rapidly growing markets in the entertainment industry. The modern mobile games sector provides customers with goods that cover all the fields of experience and can be considered as a product of the Experience Economy. Our study is aimed at identifying trends and factors in the development of the computer and mobile games market as a sector of the entertainment industry. The main stages of its evolution were examined. These stages are determined on the one hand, by the development of technical devices, on the other hand, by customer demand for impressions and experience. The main factors that ensured the promotion of game technologies and the market success of game developers and producers of game equipment were identified.

Key words: experience economy, entertainment industry, game study, mobile games, video games, consoles.

Introduction. A quarter of a century has since the term Experience Economy appeared first in a scientific thesaurus [1]. Nowadays a common point of view is that the Experience Economy following Agrarian, Industrial, and Services Economies is forcing businesses to satisfy consumer demand for memory events and experiences. According to the fields of experience (educational, entertainment, esthetic, escapist), the Experience Economy has been prominently developing first of all in sectors related to leisure activities, tourism, culture, and entertainment [2].

Impressions and experiences are the core of the entertainment business, and in general, the development of the entertainment industry determines essentially the trends of the Experience Economy. Mobile games are one of the most rapidly growing markets in the entertainment industry. The modern mobile games sector provides customers with goods that cover all the fields of experience and can be considered as a product of the Experience Economy whose evolution has an essential influence on its development.

Tasks and methodology. Trends in the entertainment industry have been studied throughout the history of civilization, starting from ancient Rome [3].

The studies substantiate the conclusion that as free time increased, people's demand for leisure activities enhanced, really moving entertainment to the set of basic needs. The appearance of the first slot machines was a turning point in the evolution of the entertainment industry, determining the transition from passive spectacle to the pleasures of one's own actions [4].

Various aspects of modern computer and mobile games are discussed in a number of information and analytical sites, such as IGN, AmpereAnalysis, NewZoo [5, 6, 7].

This information is necessary to analyze the trends in this market, which are determined, on the one hand, by the improvement of the technical background of mobile gaming, and, on the other hand, by changing consumer demands in accordance with the Experience Economy insights.

Our study was aimed at identifying trends and factors in the development of the computer and mobile games market as a sector of the entertainment industry. In accordance with the tasks of the study, the main material of the article is structured as follows: the historical aspect of the development of computer and mobile games; consoles and games for personal computers; mobile gaming market and factors of its development.

The research methodology is based on a system and structural analysis of the video game market, and statistical and graphical methods.

Basic theoretical and practical provision. Historical aspect of the development of computer and mobile games. The origin of the entertainment industry can be considered from ancient Greece and ancient Rome, when performances, theaters, and various types of spectacles already appeared. The well-known expression "Bread and Circuses" by the Roman satirist Juvenal became a symbol of fundamental mass needs, equating, in fact, entertainment with primary needs. The Middle Ages contributed to the development of entertainment too, despite the harsh reaction of the church. At this time the first games appeared: cards, dice, checks, and backgammon, which came from the East [8].

The length of the working week can be considered one of the main factors driving entertainment evolution. In medieval England, a person worked 14–16 hours a day, but in 1848, first in Australia, then in some US states, an 8-hour working day appeared. Almost all spheres of entertainment at that time got a powerful boost to develop.

The appearance of cinema and radio became the driver of that process. Until the 50s of the 20th century, big cinema studios took people's attention, collected huge money, and even performed political functions [9].

The appearance of slot machines satisfied the customers' demand for participation and feeling emotions from one's own actions. The first prototype of a gaming machine was a mechanical "Turk", where a person had the opportunity to play chess against the machine. But it was still an illusion because the master was hiding inside the car [10]. At the end of the 19th century, the first gaming machines (slot machines) appeared and quickly became popular.

Despite their simplicity, their basic functionality grounded the basis for electronic devices [5].

The further evolution of slot machines was driven by the development and widespread use of computers. However, for very expensive and very big computing machines, as they were in the middle of the last century, the idea of games was unrealistic. Nevertheless, in 1958 physicist Willie Higginbotham created the first simple arcade game "Tennis for Two". Starting as primitive gameplay, the game evolved over the years into the famous Pong slot machine provided by the company Atari. This slot machine did not require large investments and this fact drove essentially its popularity [11]. In the 70s of the 20th century, when people got access to personal computers, the term "interactive entertainment" became widespread: home game systems, or consoles, entered the market.

Consoles and games for personal computers. Game consoles are specialized hardware for computers used for playing video games. Starting in 1972, there are already 9 generations of consoles, which differ in technical characteristics and capabilities.

The market success of game consoles was ensured by the following factors:

1) the possibility of connecting to a home TV;
2) the possibility to choose games, although the range of games was still meager;
3) a number of games were included in the standard configuration of consoles, that is, it was not necessary to buy games;
4) possibility of multiplayer for 2, 3, or 4 players;
5) adequate price: for example, for the Magnavox Odyssey set-top box, it was $100 in 1972, which was affordable for an American or European family.

As comparable prices show, the Magnavox Odyssey (1972) is one of the two most expensive consoles. The advanced consoles of 4, 5, 6 generations (1990, 1996, 2000) were the cheapest when entering the market (Table 1).

Table 1

Price for selected types of game consoles*

Console Generation	Console type	Company	Year of market entry	Original price $	Original prices adjusted for inflation 2022, $
1	Magnavox Odyssey	Magnavox	1972	99	689
2	ColecoVision	Coleco Industries	1982	175	528
3	NES	Nintendo	1983	199	581
4	SNES	Nintendo	1990	199	443
5	Nintendo 64	Nintendo	1996	199	369
6	PlayStation 2	Sony	2000	299	505
7	PlayStation 3	Sony	2006	499	720
8	PlayStation 4	Sony	2013	399	623
9	Xbox Series X	Microsoft	2020	499	561

**Calculated on the base [5]*

Adequate price policy for consoles can be illustrated by the case of the USA (Table 2). Comparing prices for selected consoles from different generations and monthly average household income shows that the highest relative price was in 1972 (Magnavox Odyssey, 10,5% of monthly income), and the lowest one was in 1996 (Nintendo 64, 5,1%). The trend of relative prices could be described as decreasing, however, this tendency wasn't monotonous. But, in general, game consoles were not very expensive and this facilitated their popularity.

Table 2

Game console prices and household income, USA*

Year	Console type	Monthly average household income, $	Original console price, $	Relative price (4/3, %)
1	2	3	4	5
1972	Magnavox Odyssey	940	99	10,5
1982	ColecoVision	2026	175	8,6
1983	NES	2117	199	9,4
1990	SNES	3117	199	6,4
1996	Nintendo 64	3927	199	5,1
2000	PlayStation 2	4761	299	6,3
2006	PlayStation 3	5547	499	9,0
2013	PlayStation 4	6053	399	6,6
2020	Xbox Series X	8086	499	6,2

**Calculated using [12]*

Set-top boxes remain an important and stable sector of the games and interactive entertainment market (Fig. 1).

This market has some specific features; among which it is worth noting the following.

1. Higher prices for games and sales of consoles "in the red", because producers earn interest from licensed copies of games.

2. Consoles lag technologically behind personal computers, as they are developed and come out once every five to seven years, while PCs are constantly being modernized.

3. The console market is an oligopoly with a very high entry threshold. To enter this market it is necessary to invest not only in a new console and marketing, but also in the games themselves, because development companies are skeptical about developing games for the new architecture.

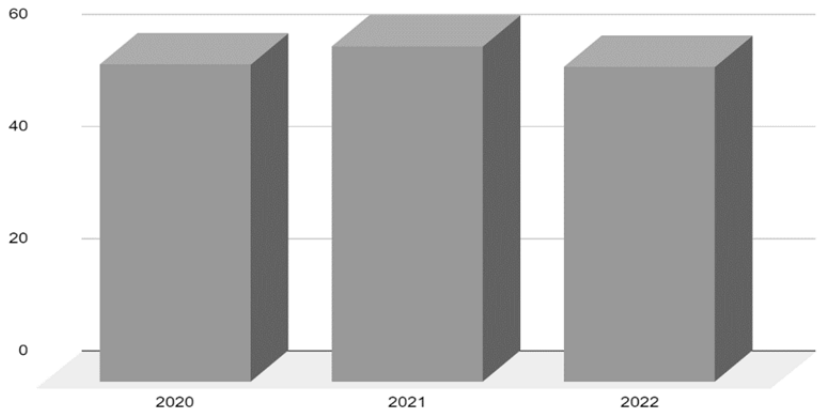

Fig. 1. Global console gaming market, bn $

Source: Harding-Rolls P. [13].

In addition, a game console is a device that has only entertainment functions. Another situation is when multi-functional equipment is used for games. After the appearance of the first mass PCs, the possibility of using this equipment opened up for everyone who could buy such a gadget.

Thus, PC games developed closer to the end of the 1980s, when CD-drive technology began to spread around the world. In our opinion, the main factors that ensured the success of interactive entertainment on a PC are the following.

1. Rapid technological development of personal computers. Modern consoles and mobile devices do not have similar computing power.

2. Unification of standards. Computer parts from different manufacturers can be combined with each other, and the market of operating systems is controlled by Microsoft.

3. Multifunctionality of the device. Modern PCs have many functions, including those related to the Internet. Personal computers were purchased first of all for work or study, but at the same time, the user's need to play can be satisfied.

4. Piracy. Unfortunately, a huge amount of content on the PC is distributed illegally. This is still a specific feature of the software market, where software companies don`t have ultimate solutions to prevent piracy.

5. Competition. Due to the lack of a monopoly from hardware companies, small game studios had an opportunity to create games, so the variety of genres and cult projects has been growing [14].

It is worth emphasizing that the entertainment industry has become its cult status thanks to the development of PC games. For almost forty years of commercial production, a large number of franchises have been issued, which, by the way, later were realized as console and mobile versions. Table 3 presents the five most popular games in history by the number of copies officially sold (including PC, console, and mobile devices).

Mobile gaming. Since the 2010s, mobile gaming has become the most promising and profitable for companies [16]. Based on the analysis of mobile gaming specifics [15, 16] we identified the most important factors driving this success.

Flexibility in free time spending. The modern rhythm of life, especially in megacities, leaves people only moments for recreation, and therefore many potential game players have very limited time resources for their favorite pastime. Mobile games in this sense are more flexible, because they take less time, and mostly do not require strong concentration of attention.

Simplicity. The mobile game is much simpler, and closer to an arcade game and this broadens the target audience. As an example, we can refer to the genre "Three In A Row", which children like very much. Simplicity eliminates restrictions of age, education, skills, etc., and therefore contributes to the potential consumers' audience expansion.

Table 3

Best-selling video games

Title	Country	Sales (m)	Issue Date	Is mobile?	Genre
Minecraft	Sweden	238	2009	Yes	Sandbox
Grand Theft Auto V	UK	185	2013	No	Action-adventure
Tetris (EA)	Canada	100	2006	No	Arcade
Wii Sports	Japan	83	2006	No	Simulator
PlayerUnknown's Battlegrounds	South Corea	75	2017	Yes	Battle Royale

Source: Sirani J. [15].

Accessibility and convenience. The smartphone is always nearby, there is no need to start a PC or console and carry special equipment with you. Thus, people can play at any time using their smartphones.

Rapid development of mobile technology. The iPhone the latest model can produce a fairly high-quality picture and allow customers to play full-fledged ports of computer games.

Public opinion. The attitude toward games is different in countries. For example, buying a game console may be considered by society as "curious" for an adult, but playing on a phone is considered a usual activity because the phone has many other functions.

But the multi-functionality of a mobile phone has a flip side. Even when the game application is running, there are fairly standard functions that need to be performed, including support for telephone communication with the substation; permanent protection of confidential phone information and SIM card information; saving charge due to battery power.

Because of these limitations, in mobile gaming, we can note a "genre drought", that is, a limited range of genres and types of games. Mobile game developers concentrate on simple gameplay, a small amount of time for playing (and this is the opportunity to play in transport or during a school break), and efficient usage of limited technical resources.

Although mobile phones already began to appear en masse in the early 1990s, the market for mobile games began to take shape closer to the new millennium. Back then, the capabilities of phones were low even compared to computers of the time, and mostly mobile games were simple arcades, such as the famous Snake. It was the flagship game developed by Nokia for its phones. Moreover, this game became one of the factors of the extremely high popularity of the Nokia 3210, 3310, and 1100 phone models. The last model of 2002 is still the most popular mobile device in history – more than 250 million phones have been sold [17].

The next stage of the mobile market development can be considered the Java era when phones got color screens and the possibility of installing applications not foreseen by the basic configuration. At that time, many well-known projects appeared on the market – first of all, Gravity Defied, a bicycle riding simulator. The game became very popular due to its simple gameplay and ability to control levels. Such interest of the audience (mostly young) began to move mobile games closer to pre-computer games.

In 2005–2010, there were a lot of big PC projects that were adapted to the technical limitations of phones. For example, Assassin's Creed, Diablo, The Elder Scrolls, The Witcher, Splinter Cell, FIFA, and even the classic Prince of Persia had their mobile versions. But, comparing the possibilities for players on large devices, mobile games remained something "for children" or a simple adaptation of large projects with primitive graphics and uncomfortable controls (narrow mobile keyboard with small keys). A specific problem was the lack of adequate game distribution at that time.

There was no CD-type technology for phones, and IrDA (known as an infrared port) and Bluetooth served as the only means of exchanging data between phones. In addition, there only were a few mobile stores with games, and mostly they had limited supply from a cellular operator. It should be singled out the specific technical problem related to mobile Internet standards: phones were not able to work on a wired connection, and Edge and 3G standards had noticeably inferior speed in data exchange [18].

The appearance of the first iPhone in 2007 was a qualitative leap for the industry. The technological breakthrough, especially the touch screen, required new applications including games, from software manufacturers. In 2009, the cult game Angry Birds was issued.

At that time large game companies began to be created, which were aimed only at the mobile market. Two successful applications for the implementation of games were formed – App Store and Play Market. For example, in the first quarter of 2023, 2.248 and 2.633 million applications, respectively, were available on these platforms (2022). Number of apps available in leading app stores as of 3rd quarter [19].

Games have remained the largest category of applications in the App Store. At the beginning of 2023, there were about 340,000 games (Fig. 2).

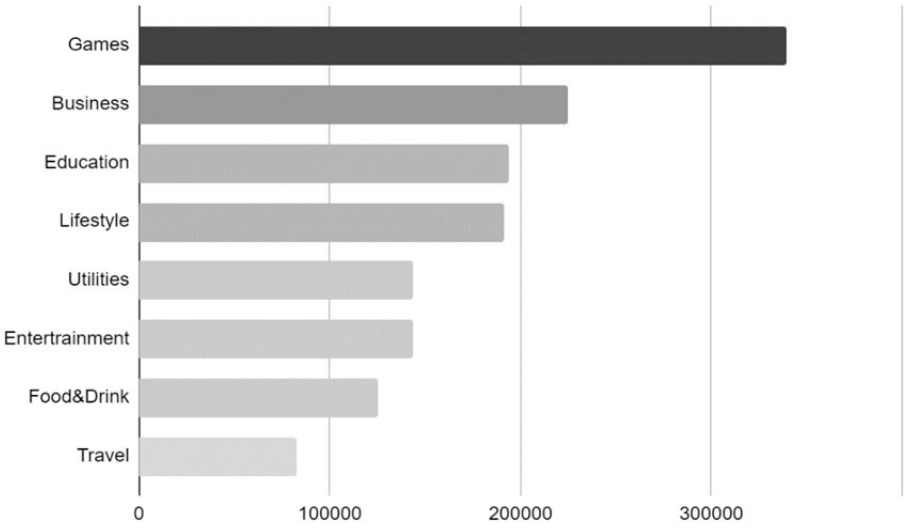

Fig. 2. Categories of applications in the App Store

Source: Curry D. [20].

For comparison, Steam (the largest digital store for PC games) will have about 92,000 games available in 2023 [21]. This can be explained by the fact that the App Store has a fairly loyal new app policy, and as a result, a lot of these games are of mediocre quality and have a very limited audience. The fact that a total of 94% of applications are free can serve also an argument in favor of low quality of these products. Of course, they can earn through additional features or donations, but, in general, it is a trend in the mobile market to give the minimum functionality to persuade the user to buy the premium version [22].

Therefore, over the past 10 years, the mobile games industry has grown to a global promising market, that has many regional features.

Conclusions. The mobile games market was analyzed as a sector of the entertainment industry and the main stages of its evolution were identified. These stages are determined on the one hand, by the development of technical devices that allow expanding the capabilities of players, on the other hand, by customer demand for impressions and experience. The main factors that ensured the promotion of gaming technologies and the market success of game developers and producers of game equipment are identified. The development of mobile gaming has become a natural milestone in the evolution of the entertainment industry and the experience economy. The next step is the transition to cross-platform video games, as a number of game companies have already announced.

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DOI https://doi.org/10.30525/2592-8813-2024-spec-10

DEVELOPMENT OF A CLASSIFICATION OF STRATEGIES FOR OPERATING ACTIVITIES OF AN INDUSTRIAL ENTERPRISE

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Abstract. The article examines the issues of assessing the effectiveness of the strategy of the operating activities of industrial enterprises. The operating strategy of an industrial enterprise shows a method of production and sale of products that has certain quantitative parameters. The indicators of the enterprise's operating activity depend on the efficiency of the use of working capital, which ensures the uninterrupted nature of production and sales of products. However, the classification models of working capital management strategies that exist in economic theory are characterized by a number of significant shortcomings, the main of which is the lack of quantitative parameters that make it possible to draw a clear line between different types of strategies. We have proposed to build a production function in which the volume of production and sales of products is considered as a target indicator that depends on two factors – the volume of working capital and the duration of their turnover. The study of this function showed that, depending on the behavior of revenue, two main groups of strategies for the operation of an enterprise are possible – growth strategies and decline strategies, and depending on how exactly this happens, four options for growth and decline strategies are possible in each group: extreme – intensive and extensive, and intermediate – sub-intensive and sub-extensive. The classification model we have proposed for the eight strategies of an enterprise's operating activity allows, according to financial statements, to determine the type of operating activity strategy used by the enterprise in the analyzed period.

Key words: model, strategy, enterprise, efficiency.

Introduction. The working capital management strategy of an industrial enterprise is the basis, the "core" of the strategy of its operating activities as a whole. It is working capital that makes the entire functioning system of an enterprise work in the process of implementing its operational activities. Working capital in the form of raw materials, supplies, work in progress, funds in settlements ensure the continuous movement of material and monetary resources in an industrial enterprise, create the necessary conditions for the enterprise to perform its main function, which is the uninterrupted production of high-quality products (goods and services) that are in demand by the consumer.

Working capital management ultimately forms the general model of industrial enterprise management, since it is based on making daily decisions aimed at ensuring the achievement of the strategic goals and tactical tasks set for the enterprise management. In other words, the type of strategy for managing working capital of an industrial enterprise determines the type of strategy for its operating activities as a whole. We will construct a classification of operating strategies of an industrial enterprise using the apparatus of production functions. A production function is an economic and mathematical equation that connects variable values of costs (resources) with values of production [1, 2].

Basic theoretical and practical provision. Production functions are used to analyze the influence of various combinations of factors on the volume of output at a certain point in time (static / synchronous version of the production function) and to analyze and predict the ratio of the volumes of factors and output at different points in time (dynamic / diachronous version of the production function).

Production functions can be built for the enterprise and its individual parts – at the micro level, for regional or industry complexes – at the meso level, for the country's economy as a whole, that is, at the macro level, for interstate relations – at the global level. These are the so-called aggregate functions, in which the volume of output is an indicator of the total social product or national income. For an individual enterprise, the production function describes the maximum amount of output that it is able to produce with each combination of the factors of production used, provided that they are used most efficiently. It can be represented by a set of isoquants associated with different levels of production volume [1].

The production function has the following properties [4]:

1) in the absence of at least one of the resources, production is impossible;

2) with an increase in the cost of at least one resource, the volume of output increases;

3) with an increase in the cost of one resource with a constant amount of another resource, the value of the increase in output for each additional unit of the first resource does not increase (the law of diminishing efficiency).

The most famous production functions are:

1) the classical Cobb-Douglas production function without taking into account and taking into account the economies of scale of production;

2) production functions of the Cobb-Douglas type, specifying both autonomous ("Tinbergen's additive") and scientific and technological progress materialized in resources;

3) production functions with constant elasticity of substitution of factors CES (Constant Elasticity of Substitution);

4) a production function with variable elasticity of substitution of factors VES (Variable Elasticity of Substitution);

5) Leontiev's production cost function and a number of others.

It is customary to classify production functions as one-factor, two-factor, and multi-factor, depending on the number of production factors included in the model that have a certain impact on the target indicator of the function. At the same time, the boundary between these types of production functions is to some extent conditional, since factors can have mutual influence on each other, and can be transformed into a form that takes into account this mutual influence and relationship.

The extreme complexity of economic processes leads to the fact that it is theoretically possible to determine the numerical values of the parameters of the production function only for the simplest cases. In reality, the determination of numerical parameters and the practical application of production functions is difficult due to the huge number of factors that have a significant impact on the target indicator of the constructed model, including factors that are not amenable to quantitative formalization.

Traditionally, factors of the production function can be [1]:

1) fixed and/or working capital;

2) labor resources (number of employees and labor costs, taking into account the qualifications of workers);

3) installed capacity of equipment, electricity costs and other indicators.

In our case, the factors of the production function will be working capital and the duration of their turnover. The choice of these factors is explained by their determining influence on the volume of products produced in the course of the operating activities of the enterprise. A model that combines the target indicator – the volume of output – and the factors influencing it is usually called the production function of output. In the production cost function, on the contrary, the volume of output acts as a factor, and the resulting indicator is the amount (cost) of a particular resource required to produce a given volume of output.

The most famous and simple is the Leontief production cost function, which is used in constructing inter-industry balances of production and distribution of products both on the scale of a separate region and the national economy of the country as a whole.

Production cost functions find direct and very wide application in the everyday practice of all industrial enterprises without exception, allowing for a fairly accurate calculation of the need for all types of resources necessary to produce given volumes of specific types of products. In world and domestic practice, computer systems for managing material, labor, production, energy, financial, information and other resources (enterprise management systems such as MRP, ERP and their varieties), based on the corresponding production cost functions specified using standards, have been effectively used for a long time material intensity, labor intensity, capital intensity, machine tool intensity, capital intensity, energy intensity and other types of resource intensity. We can state with satisfaction that production cost functions are extremely widely and successfully used in all industries and in all enterprises without exception, both in the country and abroad, and the use of computer technology makes their use more and more efficient.

There is an obvious correspondence between cost production functions and one-factor output production functions. The simplest (linear) production cost function j type of resource Rj can be represented as a cost function j type of resource Rj can be presented in the form

$$R_j = Rc_j + Rv_j = Rc_j + r_{0j}B, \quad (1)$$

Rcj – conditionally constant part of resource costs j type, but depending on the volume of output, monetary or in-kind form;

Rv_j – conditionally variable part of resource costs j type, depending on the volume of output, monetary or in-kind form;

r_{0j} – resource intensity standard for the conditionally variable part j type of resource in a unit of a given type of product, unit of measure of resource / unit of measure of production;

B – planned volume of production of this type of monetary or natural units

If conditionally fixed costs of some j resource Re, can be neglected, the linear production cost function (1) degenerates into a proportional production cost function:

$$R_j = Rv_j = r_{cj}B. \quad (2)$$

Both linear (1) and proportional (2) cost production functions are fully consistent with the realities of modern production and are widely used. So, in function (2) one can easily guess the analogue of the production cost function of V. Leontiev.

The simplest one-factor output production function can be obtained from the expression for the linear production cost function (1) by simple transformations and subsequent replacement of the indicator B by $maxB_j$:

$$maxB_j = \frac{R_j - Rc_j}{r_{0j}} = r_{0j}\left(R_j - Rc_j\right) = r_{0j}Rv_j, \quad (3)$$

$max\ B_j$, – the maximum possible volume of production of a product of a given type, determined on the basis of the volume of resource allocated for its production j species under the assumption that the resources of all other species are unlimited, that is, they are limiting for the production of this type of product, monetary or natural forms;

r_{oj} – standard of resource productivity for the conditionally variable part j type of resource required for the production of this type of product unit of measure of production / unit of measure of resource;

$R_j - Rc_j = Rv_j$ – conditionally variable part in the available volume j type of resource allocated for the production of this type of product.

If for some types of resources their conditionally constant part is negligible ($Rc_j \approx O$), a linear one-factor output production function turns into a proportional one-factor output production function

$$maxB_j = r_{0j}R_j, \tag{4}$$

r_{0j} should be considered in this case as a standard for the overall resource return on the resource j kind.

Since the production of any product requires the involvement of many different types of resources, the maximum possible volume of output of this type of product, based on the established restrictions on the resources used for its production, will be given by the formula

$$maxB = \min_{\forall \in J}[maxB_j] = \min_{\forall \in J}[r_{0j}(R_j - Rc_j)], \tag{5}$$

J – the set of all types of resources necessary for the production of this type of product.

In expression (5), some of the quantities Rc_j can, as mentioned above, be taken equal to zero. The output production function (5) formally looks like a multifactorial one (depending on J factors), in reality, the maximum possible output of products of this type max B is determined by the volume of a single limiting resource (namely, the one that achieves the minimax output value determined by formula (5), and, therefore, function (5) is one-factor. One-factor (as linear and proportional) production functions of output are also widely used in the practice of planning and organizing production. With their help, using formula (5), you can calculate the maximum possible volume of output, based on the restrictions on available production resources and the established standards of resource return.

The deceptive ease of transition of cost production functions of type (1) to output production functions of type (3) and finally to aggregate output production functions of type (5) can create the illusion of ease of use and wide distribution in the practice of planning and managing production of multifactorial production functions in general. However, this is not the case. This can be easily seen if we analyze the simplest two-factor multiplicative output production function of the following type, the output production function of the following form:

$$B = bQR, \tag{6}$$

b – scale factor that matches the dimensions of the left and right sides of the equation, unit B / unit Q x unit R. With a special selection of Q and R dimensions, the scale factor b can be made equal to one;
Q – usually considered as a “qualitative” factor such as “labor productivity”, “turnover (the number of turnovers of working capital)”, “capital productivity” and other similar indicators of the efficiency of the use of production resources (respectively, “number of employees”, “average cost of working capital”, “average the cost of fixed production assets "and others), units of measurement depend on the type of factor;
R – usually considered as a "quantitative” factor characterizing the volume (costs) of the resource, the effectiveness of which will be given by the "qualitative” factor Q. For the above types of factor Q, the corresponding types of factor R will be "number of employees”, "average the cost of fixed production assets”, units of measurement depend on the type of factor.

Both factors in the two-factor multiplicative production function of output (6) must be independent of each other in the sense that knowing (or not knowing) the value of one of them does not help (but does not prevent) from determining the value of the other factor.

In other words, if one of the factors (this is usually a "qualitative” factor) is calculated by the formula

$$Q = \frac{B}{bR}, \tag{7}$$

then, in fact, the two-factor multiplicative production function of output (6) will be used, but only a one-factor modification of the production cost function of the form (2).

Indeed, this "substitution” of one production function for another becomes apparent from the following simple transformations. By analogy with formula (2), we represent the resource capacity τ_e as

$$r_e = \frac{R}{B} \tag{8}$$

and then we express the resource productivity ("qualitative" factor) as the reciprocal of the resource intensity:

$$r_0 = \frac{1}{r_e} = \frac{B}{R}. \quad (9)$$

The formal coincidence of (9) and (7) is striking, and for b=1 (as mentioned above, this can be achieved by selecting the dimensions of the Q and R indicators) they are generally identical.

It becomes clear that progress in the use of two-factor multiplicative output production functions of the type (6) becomes possible only when a conscious refusal is made to calculate the "quality" factor Q according to formula (7), and special methods of direct estimation (measurements, calculation) of its value in real time during the production process, based on the internal nature of the factor itself.

The construction of a model with which it would be possible to create a classification of strategies for the operation of an enterprise and identify clear quantitative criteria for attributing the nature of the current activity of an enterprise to a particular strategy will be carried out on the basis of a known indicator of working capital turnover. The classic turnover ratio is an indicator of resource efficiency that characterizes the volume of sales per one euro of the company's working capital.

In addition to the turnover ratio, it is customary to calculate the duration of the turnover of working capital as the ratio of the duration of the analyzed period to the turnover ratio or, accordingly, as the ratio of the average value of working capital to sales volume, multiplied by the duration of the analyzed period. In economic analysis, it is customary to call the volume of working capital a quantitative factor, and the duration of their turnover – a qualitative one, in the sense that "quantitative factors are considered that express a certain quantitative certainty of phenomena (the number of workers, equipment, raw materials, etc.), and qualitative factors determine internal qualities. , signs and features of the objects under study (labor productivity, product quality, profitability, etc.)" [2], although the boundary between these characteristics of factors is very arbitrary.

Let us consider in more detail the indicator of turnover of working capital in the form of its presentation through the duration of their turnover. We write the volume of production (in the form of revenue) B as a function of time t of two parameters: the value of the resource – working capital OC – and the performance indicator – the duration of the turnover of working capital.

In traditional financial analysis, it is customary to measure the duration of the turnover of working capital in days, in this case, in this formula, it is necessary to multiply the ratio of working capital to the duration of turnover by the duration of the analyzed period (usually a year) in days (365/366 or 360, depending on the method of calculation the number of days between dates (exact or approximate). But in order to simplify the record, we will measure the duration of the turnover of working capital immediately in fractions of a year, and thus multiplication by the number of days in the analyzed period is not required.

Find the time derivative of the expression:

$$B'(t) = \frac{OC'(t) \times \text{ПО}\ \ (t) - OC(t) \times \text{ПО}'(t)}{\text{ПО}^2(t)} = \frac{OC'(t)}{\text{ПО}(t)} - \frac{OC(t) \times \text{ПО}'(t)}{\text{ПО}^2(t)}. \quad (10)$$

Let's move on to the left side of expression (10) to the growth rate of production $B(t) = \frac{OC(t)}{\text{ПО}(t)}$ enoting it tB(t). To do this, we divide the left and right parts of (10) into the expression:

$$\tau_B(t) = \frac{B'(t)}{B(t)} = \frac{OC'(t)}{\text{ПО}(t) \times \frac{OC(t)}{\text{ПО}(t)}} - \frac{OC(t) \times \text{ПО}'(t)}{\text{ПО}^2(t) \times \frac{OC(t)}{\text{ПО}(t)}} = \frac{OC'(t)}{OC(t)} - \frac{\text{ПО}'(t)}{\text{ПО}(t)} = \tau_{OC}(t) - \tau_{\text{ПО}}(t), \quad (11)$$

$\tau_{oc}(t)$ and $\tau_{no}(t)$ – respectively, the growth rate of the value of working capital and the duration of their turnover.

The expression (11) we have obtained establishes a dynamic relationship between the target indicator – the growth rate of revenue (sales volume) τB(t) and two factors – the growth rate of working capital τOC(t) and the growth rate of the duration of their turnover τПО(t). This dependence is a two-factor additive production function, derived from the original function, which has the form of a multiplicative production function.

It is obvious that the volume of production and sales of products (revenue) is a complex indicator of the financial result of the enterprise, which is influenced by many different factors, and not only the amount of working capital and the duration of their turnover. Among this multitude of factors, there are also non-formalized ones, the influence of which is difficult or even impossible to quantify, so the creation of a comprehensive model that would take into account all the factors affecting the volume of production and sales of products seems to be an extremely difficult task. Among the income generating factors that can be formalized, price and volume parameters are usually considered, for which various methods of evaluation and management have been developed. In order to ensure comparability of cost indicators, we will consider prices of finished products and prices for material and financial resources embodied in the working capital of the enterprise to be unchanged in the relevant period. In this case, the dynamics of revenue will coincide with the dynamics of the natural volume of production and sales of products. In addition, it is necessary to make the assumption that the volumes of production and sales of products in each period coincide, that is, the presence of a warehouse of finished products is not taken into account, which provides regulation between the discrepancy between these indicators, which inevitably arises in practice.

In our opinion, the presentation of the growth rate of production volume and sales of products (revenue) as a function of such factors as the growth rate of working capital and the growth rate of the duration of their turnover is quite reasonable, especially if the market is not saturated with goods, demand they exceed supply, there is a potential for expanding the sales market for products, and sales volumes can be increased in proportion to the volume of production, and production volume can be increased, first of all, due to effective management of working capital. The study of this dependence is promising for the purposes of creating a classification of strategies for the operation of an enterprise, since it allows you to set the numerical parameters of various options for the interaction between these indicators.

During the study, it was found that exactly eight characteristic variants of the interaction of the two factors considered by us in the production function – the growth rate of working capital and the duration of their turnover – and their influence on the growth rate of output (revenue) are possible. This made it possible to form an idea of the existence of eight possible strategies for managing working capital, and in a broader sense, strategies for the operating activities of an enterprise, and to identify the criterial values of indicators that determine the boundaries between them. The graphical representation of the model is shown in Figure 1.

In Figure 1, the horizontal axis is the growth rate of the duration of the turnover of working capital τПО, along the vertical – the growth rate of the value of working capital τOC.

Beams P1, P3, P5, P7 are bisectors of right angles of the coordinate plane, on which the absolute values of the growth rate of working capital and the duration of their turnover coincide.

So, the rays P1 and P5 correspond to the directions of the line of an arbitrary isoquant. Beams P3 and P7 are the directions of the gradient and the steepest descent, respectively, that is, the fastest possible transition from one revenue isoquant to another, therefore, on these rays, the growth rates of sales volume have the maximum and minimum possible values, respectively. On the beam P3 are the values of the growth rate of working capital and the duration of turnover, the same in magnitude, but different in sign. Working capital has a positive growth rate, and the duration of turnover is negative.

The company increases the amount of working capital and at the same time reduces the duration of their turnover. This is the fastest way to increase production. Beam P7 characterizes the fastest possi-

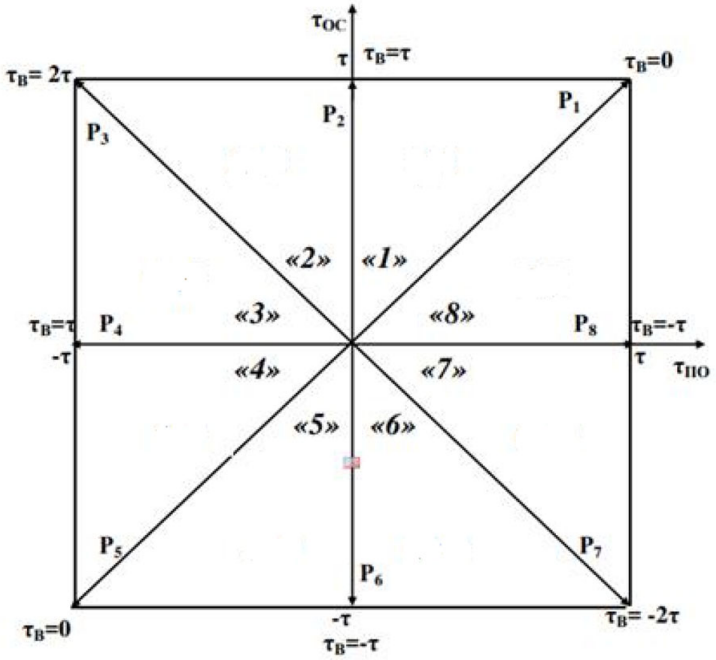

Fig. 1. Graphical representation of eight possible strategies for the operation of the enterprise, depending on the ratio between the growth rates of production factors (volume of working capital τOC and duration of their turnover τПО) and growth rate of output (revenue) τB. Value τ sets the scale for displaying the growth rates of factors and results

ble transition to the isoquant with a smaller volume of production, since it contains the same modulo values of the negative growth rate of the volume of working capital and the positive growth rate of the duration of their turnover. Such dynamics of these factors has a negative impact on the volume of production, since the volume of working capital decreases with a simultaneous slowdown in their turnover. Rays P1, P3, P5 and P7, together with the coordinate axes, divide the entire coordinate plane into eight sectors, in each of which a certain ratio is observed between the growth rate of working capital and the duration of their turnover, which determines the corresponding behavior of the growth rate of revenue. This combination of tempo indicators in the diachronic model determines the strategy of the enterprise's operating activity in each individual case.

Thus, each sector in Figure 1 corresponds to a specific strategy for the operation of the enterprise. In the case when the values of the growth rates of the value of working capital and the duration of their turnover do not fall into the sector, but exactly on one of the eight indicated rays, the analyst can independently choose which strategy to attribute the current disputable situation to.

In our opinion, given the positive dynamics of the previously observed strategies, one can choose the more optimistic option and define the situation as the more efficient of the two strategies, on the boundary of which the values of the growth rate indicators turned out to be. With the negative dynamics of previously established strategies, it is possible to attribute a less effective variant of strategies to the situation and, thus, "anticipate" the predictive values of the strategies.

The numbering of the eight operating strategies of the enterprise begins with the sector located between the rays P1 and P2, and continues in a counterclockwise direction. The first four strategies reflect the growth in production volumes (revenue growth rate τB>0), and this growth is achieved in different ways.

In strategy 1, the studied factors act on the growth rate of production volume in different directions – the growth of working capital has a positive effect, and the increase in the duration of their

turnover is negative, but at the same time, the positive growth rate of working capital exceeds the positive growth rate of the duration of their turnover, therefore, an increase in the final result is achieved (volume of production).

In strategy 2, the growth rate of working capital is positive, and the growth rate of the duration of their turnover is negative, in this case, both factors act positively on the increase in production volume. Since in strategies 1 and 2 the increase in the final result is more affected by the increase in working capital than by the change in the duration of their turnover, we can say that in both cases the increase in production is achieved mainly in an extensive way.

Strategy 3 is characterized by the fact that the effect of each of the two factors on the increase in production volume is positive, as in the sector of strategy 2, but at the same time, the factor of reducing the duration of the turnover of working capital in its influence on the final result prevails over the factor of increase in working capital, which can be regarded as manifestation of a predominantly intensive method of increasing production volume.

In strategy sector 4, the growth rate of the volume of working capital is negative, and this negatively affects the growth in revenue, but at the same time, this effect is more than offset by the positive impact on the resulting indicator of the factor reducing the duration of the turnover of working capital. Thus, in strategy 4, the increase in production volume occurs despite the reduction in the amount of working capital, due to the acceleration of their turnover, which indicates an intensive way to increase production volume.

Strategies 5…8 characterize the decline in production volumes (τB0). In strategy 5, this decline occurs under the condition of a faster reduction in the amount of working capital over a reduction in the duration of their turnover, that is, in an intensive way. In strategy 6, the volume of production is reduced in conditions of an outstripping decrease in the value of working capital compared to the rate of increase in the duration of their turnover. In other words, both factors affect the final result negatively, but the company manages to reduce working capital faster than the duration of their turnover increases, and this option can be considered rather intensive. In strategy 7, working capital decreases more slowly than the duration of their turnover increases. As a result of the negative impact of both factors on the value of the resulting indicator, the volume of production falls. Strategy 8 is characterized by a faster increase in the growth rate of the duration of the turnover of working capital over the growth rate of working capital. The slowdown in turnover negatively affects the final result, and the increase in production does not occur, despite the increase in working capital. This option can be considered extensive.

All eight operating strategies of the enterprise were named by us in accordance with their description above, and they were designated by the corresponding abbreviations, in which the following abbreviations were accepted:

I – intense

E – extensive,

S – sub-intensive (mostly intensive),

Se – subextensive (mainly extensive),

G – growth,

R – recession.

These designations of strategies are used in Figure 2.

The value of τ sets the scale for displaying the growth rates of factors – the duration of the turnover of working capital and the size of working capital – and the result – revenue. In Figure 2, the model for classifying the strategies of the enterprise's operating activities is presented in a three-dimensional form.

A three-dimensional image allows you to clearly identify the areas of increasing the financial result (strategy 1...4) and areas of its decrease (strategy 5...8). It is clearly seen that on the rays P1 and Ps the rate of revenue growth is zero, and in sectors 1...4 it has a positive value, reaching a maximum equal to 2τ. on the beam P3, at the point where the growth rate of working capital is equal to τ. and the

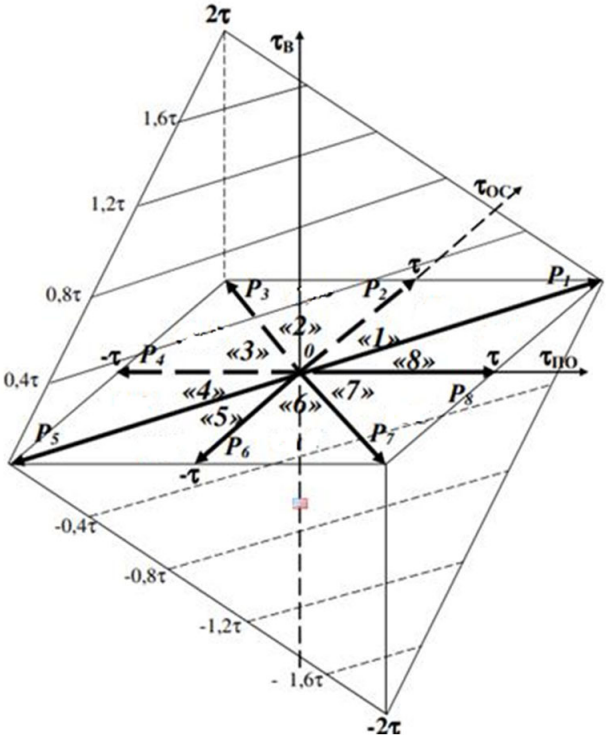

Fig. 2. Enterprise operating strategies (3D model)

Note: the isoquants TB=const>0 are shown as solid straight lines, the isoquants rB=const<0 are dashed, the isoquants TB=const=0 are located along the vectors P1 and P5

growth rate of the duration of their turnover is equal to minus τ. Accordingly, the revenue growth rate reaches a minimum, equal to minus 2τ, on the beam P7. at the point where the growth rate of working capital is minus τ. and the growth rate of the turnover duration is equal to τ.

In order to assess the effectiveness of the strategies of the enterprise's operating activities and arrange these strategies by the level of efficiency, we assigned each of the eight strategies scores in accordance with our understanding of their effectiveness, taking into account the fact that, firstly, intensive strategies are more effective than extensive ones. , and, secondly, output growth is more effective than its decline. To keep the same interval between the evaluations of effective and ineffective strategies, the strategy was given a zero score. Efficient strategies received positive ratings, inefficient ones negative (including zero). As a result, the following scale of scoring strategies for the operating activities of the enterprise was formed (Table 1).

Table 1

Scoring strategies for operating activities of the enterprise

Scoring	Strategy number	Strategy name	Abbreviation
4	4	Intensive growth	IG
3	5	Intense recession	IR
2	3	Sub-intensive growth	SiG
1	6	Sub-intensive recession	SiR
0	2	Subextensive growth	SG
-1	7	Subextensive recession	SR
-2	1	Extensive growth	EG
-3	8	Extensive recession	ER

The highest rating (4 points) was given to the strategy of intensive growth (IG strategy, number 4), since it allows increasing the volume of production and sales in the most efficient way – reducing the volume of working capital while accelerating their turnover. Such a strategy can be applied at enterprises that use the latest methods of organizing and managing production based on the digital economy, introduce innovative technologies, automated production complexes, and apply the principles of lean production. The intensive growth of production volumes takes place in the conditions of the maximum reduction of all excess working capital resources, including through the use of optimization models for operating management.

A high efficiency rating (3 points) was given to the intensive decline strategy (IR, number 5), which is explained by the fact that, in our opinion, the advantage in assessing efficiency should be given not to those strategies that are aimed at increasing production volumes in any way, but to those that which suggest a more intensive variant of the implementation of the goal.

A reduction in the volume of production of a certain type of product or an entire product group can be fully justified and necessary if this product of the enterprise ceases to be in demand, is forced out of the market by substitute goods, gives way to competitive positions with more modern products that better meet the needs of customers. At the same time, it should be understood that the reduction in production volumes can be organized in different ways.

The reduction may be accompanied by the release of working capital and a decrease in the duration of their turnover (intensive path), which should be recognized as an effective option for curtailing production, and may occur in other, less efficient ways, the most inefficient of which is the path of a simultaneous increase in working capital and an increase in the duration of their turnover (an extremely extensive recession option – strategy 8 – ER).

In other words, we can say that strategies 4 and 5 are the most effective strategies for the operation of the enterprise. In these options, the planned growth or the necessary reduction in production volumes is achieved by maximizing the intensification of activities. It is strategies 4 and 5 that to the greatest extent satisfy the currently extremely urgent requirement of sustainable development (sustainable development) as a single enterprise, region, country, and the world economy as a whole.

Strategies that have the term "sub-intensive" in their name are very close to intensive strategies in terms of their effectiveness. Their effectiveness is quite high, so they are assigned fairly high positive scores. Sub-intensive growth in production and sales of products (SiG strategy, number 3) is ensured by the predominant influence on the result of an intensive factor – the duration of the turnover of working capital. The company manages to reduce the duration of the turnover to a greater extent than the amount of resources invested in working capital increases. The SiG strategy receives a score of 2 points.

The sub-intensive recession strategy (SiR, number 6) is comparable in terms of effectiveness to the sub-intensive growth strategy, but is inferior to it in the score, since recession is considered less effective than growth. Due to the predominant action of the intensive factor, when the decline in production is accompanied by the release of working capital, the strategy gets 1 point.

In other words, not only growth, but also a decline in activity can be effectively or inefficiently organized, and strategies 5 and 6 just show the most effective ways to reduce production volumes, in fact, in terms of efficiency, these strategies are analogues of strategies 4 and 3, but in the reduction option production volumes.

Strategies 3 ... 6 reflect predominantly an intensive, more efficient way of the enterprise, which can be called resource-saving production.

Strategies 1…2 and 7…8 characterize predominantly an extensive mode of production, which can be considered resource-consuming, and therefore inefficient. Subextensive strategies receive rather low efficiency ratings, since extensive factors have a predominant influence on the final result in this case.

The subextensive growth strategy (SG, number 2) has a score of zero, which allows for equal intervals between positive and negative strategy scores. In this strategy, the growth of the target indicator is achieved by advancing the growth of the volume of working capital in comparison with the influence of the factor of accelerating their turnover.

The strategy has a neutral assessment of effectiveness, since its application can be explained by forced necessity. At the stage of accelerated growth, for example, in the case when there is a need to ensure an early return on investment in a new investment project, an accelerated increase in investments in working capital is inevitable, which makes it possible to increase the volume of production.

The sub-extensive decline strategy (SR, number 7) is the first of all strategies to receive a negative rating (minus 1 point) due to the fact that the decline in production is accompanied in this case by a significant slowdown in the turnover of working capital. While an understandable reduction in working capital accompanies a decline in production volumes, the negative impact of increasing turnover times outweighs the positive effect of the volume factor.

Strategy 1 (extensive growth – EG) is the least effective of all growth strategies (score minus 2 points), since when it is applied, the growth in production is achieved by accelerating the increase in the amount of working capital while increasing the duration of the turnover of working capital. The use of this strategy can only be due to the objective absence of other opportunities for increasing the volume of production. Finally, the strategy of extensive decline (ER, number 8) has the minimum effectiveness rating (minus 3 points), the implementation of which has a simultaneous negative impact on the target indicator of both factors. The decline in production is accompanied by an increase in working capital and an increase in the duration of their turnover. A more unfortunate combination of factors cannot be imagined.

Conclusions. The operating strategy of an industrial enterprise reflects a characteristic way of producing and selling products (rendering services), which has certain quantitative parameters. The results of the enterprise's operating activities to the greatest extent depend on the efficiency of the use of working capital, which ensures the uninterrupted nature of production and sales of products. However, the model of classification of working capital management strategies into three types that exists today in economic theory – aggressive, conservative and moderate (compromise) – is characterized by a number of significant shortcomings, the main of which is the lack of quantitative parameters that make it possible to draw a clear line between different types of strategies. This makes the traditional classification of strategies inapplicable in practice.

To solve this problem, we proposed to build a production function in which the volume of production and sales of products (revenue) is considered as a target indicator that depends on two factors – the volume of working capital and the duration of their turnover.

The study of this function led us to the conclusion that, depending on the behavior of revenue, two main groups of strategies for the operation of the enterprise are possible – growth strategies and decline strategies, and depending on how this happens, four options for growth and decline strategies are possible. in each group: extreme – intensive (I) and extensive (E), and intermediate – sub-intensive (S) and sub-extensive (Se).

The classification model we have proposed for the eight strategies of an enterprise's operating activity allows, according to financial statements, to determine the type of operating activity strategy used by the enterprise in the analyzed period. We assigned each strategy an efficiency score from minus 3 to plus 4 (including 0), based on the idea that growth is more effective than recession, and the intensive nature of the strategy is more effective than extensive.

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DOI https://doi.org/10.30525/2592-8813-2024-spec-11

CRISIS OF MODERN ECONOMY. HUMAN MANAGEMENT OF ANTI-CRISISIS TRANSFORMATIONS AND PERSPECTIVES OF NATIONAL ECONOMIC DEVELOPMENT

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Abstract. The purpose of this article is to reveal the causes and characteristics of the current global financial and economic crisis and to explain the need for human-dimensional management of anti-crisis transformations in the modern world.

The novelty lies in revealing the prospects of national economic development in the context of post-nonclassical economic science and revealing the necessity of human-centric management of anti-crisis transformations in the modern world.

Key words: crisis of modern economy, world financial and economic crisis, financial civilization, human-centric management, post-nonclassical economic science, spiritual-bio-social nature of human, archetype "freedom-responsibility", humanity, strategy of spiritual-noosphere-sustainable development.

Introduction. The crisis of the modern economy has actualized theoretical discourses on its causes and consequences. In a certain context, the crisis can be considered as the tip of the iceberg, the base of which is hidden in the deep layers of modern society. In this case, the question arises about the essence and possible alternatives of social development, especially in the context of human existence, whose existence today is becoming more uncertain than before. What is the reason for this?

A. Greenspan, a well-known economist, financial authority of the Western world, characterizing the global economic crisis, stated: if its causes are in monetary policy, then it can be corrected. If we are dealing with global forces beyond the control of persons who make financial and political decisions (and this is what is happening now), then we have serious problems [1]. His words are justified, because finance today is not only a quantitative indicator of material and economic well-being, but also one of the main components of society. Actually, the fundamental values, institutions, interests, attitudes, aspirations, ambitions and other people are formed through them and by them.

Basic theoretical and practical provision. In this regard, the financial and economic crisis should be considered in the context of large-scale transformations that have occurred in the most important spheres of social life – social, political, cultural, psychological, and, of course, anthropological-existential. The essence of the ongoing transformations is in the unprecedented transparency of national-state borders and dispersion of property, wealth, knowledge, science, information, and technology. Consequently, the redistribution of relative geopolitical power and energy between states and regions. These processes practically minimise the possibility of rational control over the events taking place in the world from a single centre.

Moreover, the centres themselves (superpowers) are losing their influence and the phenomenon of superpower in the traditional sense is disappearing. The situation is complicated by the fact that today many important participants of the world community are non-state players. These are large economic and financial organisations, transnational banks and industrial corporations, which do not recognise

state sovereignty but operate simultaneously in many countries and have great authority there. At the same time, there is a tendency of constant growth of the weight and influence of those associations and organisations that have serious scientific, technical and financial potentials. That is, the number of participants in the socio-economic existence and the world market, their qualitative and quantitative composition has increased unprecedentedly.

At the same time, large-scale political movements – Islamic fundamentalists, terrorist groups, anti-globalization associations – are active and have become important participants in world politics and international activities. There is also a tendency to level ethno-national, cultural and religious boundaries. This leads to the loss of national-ethnic identity by national cultures, and this stipulates multiculturalism, multi-ethnicity of countries, societies, nations. Multiculturalism has become a determining factor in their lives.

Thus, the modern world community by its structural, organizational and functional parameters appears as a complex supersystem. It is formed of a multitude of interconnected, interrelated and at the same time competing and conflicting subsystems represented by nation-states, international and non-state organisations, multinational corporations, etc. Each of these systems has its own regularities, logic of functioning, and its own rules of the game. As a result, there is a tendency of increasing destructive processes, which are out of control of traditional levers of control: political and military alliances, use of force, peace agreements, etc. The question is: why is this happening?

Among the many reasons that have led to the crisis state of world existence in its economic field and destructive processes in sociopolitical and cultural life, we can emphasise two of them, which in our opinion are the main ones:

1) changes in the values of the world of man and his way of thinking and perception makes it impossible to come to an understanding of the synergetic content of the world economy. The economy according to the fundamental principles of its formation and functioning, is an open, complex, non-equilibrium and therefore incomplete system characterized by a high level of dynamism, instability and uncertainty. This brings a conflict described;

2) colossal growth of the role and importance of the financial and monetary factor in all spheres of life of the world community. Everywhere, as the imperatives of the "economic society" are asserted, the "monetary system" has established itself. No one doubts any longer, that primarily, "interest" and "convenience" determines, as "logocentrism" has given way to "body-centrism". This happened because the economy became financial and "cosmopolitan module," a community of active people linked by projects, contracts, business contacts, and means of telecommunication.

This new world is forming its own global project – a super-open society of "financial civilization", in the network of which the centralised social environment, both rational and irrational, is "revealed", giving birth to new risks and challenges. Other unexpected horizons of civilisational dimensions are opening up. Their essence is money. This is proved, in particular, by the transformation of values towards economic priorities. In addition to globalisation and internationalisation, informatisation gives a special impact and specificity to the current state of the world economy ("chaos", if we use synergetic terminology). Together they contribute to the "acceleration" of time, "compression" and "encroachment" of the human – oecumenical space, which is getting smaller and smaller. In this way, a significant advantage is given to dynamics over statics. J. Rosenau calls this situation a "turbulent state", which is characterized by a high level of complexity, dynamism, acceleration of development [2].

This very moment is one of the decisive for the configuration of human value orientations. This change is caused by new inventions, innovations, political instability, terrorism; by the transformation, thanks to information technologies, of man into a "subscriber", a consumer of signs and symbols.

It can be said that the phenomena, processes and trends generated by the information and telecommunications revolution have now reached a "state of turbulence or bifurcation point". All this has

found a vivid expression in the socio-economic being of man. In such periods, some of the fundamental values, institutions, relations, etc., which together constituted the infrastructure of the former system and ensured its unity, viability, forms and directions of functioning, are subject to "erosion" or disappear altogether.

It is precisely such turbulent states that led to the collapse of great civilizations, empires (Rome, medieval Christian Europe, the Soviet Union, etc.) and, accordingly, the dominant forms of world order in different historical periods. But since "natura abhorret vanitatem", new ones, of course, appear in their place. As a result of such crises, "turbulent states", systems (communities) either disappear from the historical arena, or, receiving impulses from the outside, mobilizing its internal resources, this system acquires new opportunities for choosing optimal responses to external challenges and self-organization on new bases. Their significance lies in overcoming and eliminating old, unviable elements and forms of life that have lost their resource.

Thorough analysis of the concepts of sustainable development and noosphere has shown that they are technocratic in nature, when man traditionally remains a means to increase profit and capital. Traditional economic thinking, the main postulates of which are the model of economic man, biosocial nature of man, economy as the main system of subjugation of all social relations, as well as the aspiration of financial and intellectual power to absolute domination, is aimed at this. However, a different view of man, his inner nature and role in social reproduction is given by the new post-non-classical economic science, which studies human-based models [3]. The main new bases of such a study are the understanding of the unified tree-basic-nature: spiritual-bio-social nature of man, the archetype "freedom-responsibility", which is a prerequisite for the deployment of a holistic economy by man, the hypothesis of the humanity [4], which upwardly directs all the good life activity of man precisely as homo sapiens. At the same time, these three reflexive postulates allow us to assert that the human being manifests himself holistically only when the spiritual hypostasis is the important factor that upwardly sets the qualities, abilities, and inner motives of the human being, which should unfold in the process of holistic economic activity of everyone.

In this sphere there is a clear enough task for a person to cognise his inner spiritual world, which in a certain way encodes otherwise possible in the spiritual-ideal sphere, and then tries to create it through his creative activity as a process of objectification. With the correct understanding of the inner spiritual world and the conscious realisation of such understanding there is a process of spiritualisation, humanisation of reality, which today in the global crisis world is tantamount to the survival and salvation of humanity, as well as the protection of Nature as a necessary environment for human life.

As the analysis of the newest period of market transformations has shown, there is, by A.S. Akhiezer, "a catastrophic inability to reproduce and distribute the necessary minimum of resources in terms of the needs achieved by society. The inversion-catastrophic way of solving problems has been preserved. The domination of society's illusory perceptions of itself, the struggle of myths as a form of clash between different groups, has also persisted. At present, the content of these perceptions is abstract-liberal in nature" [5]. The currently implemented neoliberal scenario of globalisation, except for the aggravation of socio-economic and environmental problems, does not have a productive and revitalizing for man /humanity. And overcoming this state requires, first of all, a fundamental change in the worldview, when reflection should rise to the highest level of comprehension of the crisis reality, not blind copying and planting of borrowed foreign institutions, but an in-depth analysis of the causes of what is happening in the national economy. Such reflexion "opens the way for the creative process of the people: cultural, social, political, etc".. As a consequence, the dispute about the fate of society and the people as something set externally should move into the sphere of... the growth of responsibility for one's own fate in a constantly changing world in increasingly difficult conditions" [6].

If we now turn to the more general problem of humanity's survival, the development of an appropriate economic strategy, that could resolve the extremely acute contradictions of the present in line with the human values of human life/humanity, becomes more important. The fact is that "neoliberal reforms, upon sober reflection, have neither accelerated democratization processes (which began long before neoliberalism...) nor led to sustainable economic growth...". Moreover, "using the aphoristic saying of the British economist David Harvey, the question of "saving capitalism from neoliberalism", of stabilising and "civilising" the world markets arises" [7]. In this vein, we should critically evaluate those theories or concepts that are now popular and are associated with the search of ways to overcome the current global crisis. These are two modern basic concepts of economic transformation: sustainable development and noosphere. At the same time, it is the critical moments of revealing their shortcomings or harm to man/humanity that are of greater practical importance nowadays. This is due to the fact that in practical terms these two concepts are almost not realized, but mainly the object of scientific discussions. It should be noted that metaphysical reflections invariably interfere in the traditional field of scientific search, because, on the one hand, every change of scientific paradigm is preceded by metaphysical reflections on the changes; on the other hand, post-nonclassical economic science is human-dimensional, that is it proceeds from the presence of the inner spiritual world of man, and therefore one of its main principles is the interaction of scientific and non-scientific knowledge.

The need to create a new strategy of national economic development for the growth of Ukrainians welfare indicates that its foundation should be built on spiritual and moral values, which should facilitate the goals of such a strategy. Such a format is more than necessary, because we are already on the threshold of developing a new paradigm – spiritual-noosphere-sustainable development. The understanding of this fact allows us to combine the essential aspects of the concepts of noosphere and sustainable development and the theory of human-based models – spiritual-bio-social nature of man. In this case, the determining fundamental basis of such a paradigm is spiritual and moral values of integral human activity, and the practical deployment of the above nature is realised by means of good economic activity as an integral sphere of creative and innovative life-affirming meaning-seeking and self-realisation in the process of creating a qualitatively "different possible" [8].

The essence of spiritual-noosphere-sustainable development can be defined on the basis of this name, where in the process of development organically combine and interact three fundamental spheres of cognition-economy of modern man-personality: the spiritual world; the world of science and human mind; the material-technical world of life support as a sphere of transformation of Nature. It is undoubtedly that the energies of spirit permeate all three of these worlds, constitute a certain special ubiquitous "glue" that impregnates and unites these worlds into a life-creative unity – economic reality, realising the essence of the ascending syncretic reality in the most diverse forms.

Since the strategy of spiritual-noosphere-sustainable development is based on the understanding of the inner spiritual-bio-social nature of man, we can define the main vectors-fields of economic life activity: spiritual-moral and ethical-moral; bio-genetic-healthy; socio-partner-co-evolutionary. It is clear that, these vectors-fields are constantly interacting in a holistic system of economic activity, but for the theoretical analysis of such integrity it is advisable to use the method of triadic deployment of syncretism. It allows us to reflect not only the ascent of the study through the levels: syncretic origin (ideal-ontological matrix of life) – personality (microcosm) – socio-universe (macrocosm), but also to detect the reverse influence of such levels. On the other hand, this method is directed against a schematically naive dialectic, according to which the living integrity is torn into two opposite parts, thanks to which reality is deadened, its syncretism is ignored, and the harmony of integrity can be forgotten forever. The above strategy should be based on the method of trialectic, which allows us to interpret and evaluate the necessary holistic anti-crisis economic transformations in a more profound and comprehensive way, to give management decisions and actions a purely human character, to practically implement the mechanisms of human survival.

Each of the named vectors can be relatively reduced to concentrated scientific concepts that characterize their quality and the essence of the deep characteristics of the interrelated phenomena-processes of integral human life activity. This is the concept of human-centric principles (truly human and humanarian), genes (biological) and memes (cultural proper) [9]. A purely scientific approach based on the distinction and understanding of intertransitions of human-centric principles, genes and memes allows us to say that they fix not only different levels of worldview, but also allow us to see a certain "linear order" of their build-up and realization of potential. At the same time, the specificity of this build-up is reflected in the fact that in the "linear" vision memes remove genes in themselves, and human-centric principles remove memes in themselves, and as if mark a higher integrity, which is the realization of the primary syncretism that has undergone the process of its realisation.

In this respect, it is very important to emphasize three methodological points. Firstly, the deployment and realization of the potential of genes, memes and human-centric principles passes primarily through the personality, through its holistic life activity. Therefore, it is the personality that is the basic freely responsible creative subject of management. Secondly, the economy is a field of subject interaction, when it is individuals who are the primary subjects, rather than secondary collective associations and institutions. Thirdly, the economy as a subject interaction appears first of all as a push for culture and is formed by the ideals and motives of humanity, which are realized through the Good, Beauty and Truth [10].

These three points suggest that, at the deep level, the life activity of the human is determined by value rationality, which should set the meaning of life and determine the ways and limits of its holistic realization. Anti-human actions contribute not just to reflection, but also undermine the natural and cultural foundations of life. Therefore, the main methodological postulate in the development of the national anti-crisis revival strategy is the ascending value rational orientation in the planning and implementation of economic productive managerial transformations regarding the creation of conditions for self-discovery and self-realization of the human-personality.

The strategy itself, thanks to the understanding of the human-based model nature of human and the use of the method of trialectic and the method of triadic deployment of syncretism, should include three problem-target blocks of fundamental significance: spiritual-moral and ethical-moral; bio-genetic-health-improving and socio-partnership-co-evolutionary.

The first block – spiritual-moral and ethical-moral – should set the essential framework for the revival of humanity of future national-economic transformations based on the presence of deep spiritual and moral causes of the current global crisis reality. Every person should realise that overcoming the crisis and transition to post-crisis development cannot be realized without changing the personal motives of their activities, which are now mainly aimed at achieving instant success and possible enrichment beyond moral norms. Neoliberal freedom, which turns into permissiveness and irresponsibility, cannot be a guarantee of productive changes in life. Only through the deployment of the deep personal archetype of freedom-responsibility it is possible to achieve and manage truly economic human transformations of reality.

The second – biogenetic and health-improving block – of the national strategy deals with topical problems of the broad field of physical health of the country's population. This field should include the understanding of the community: from ecologically favourable conditions of human habitation and naturally calm course of pregnancy to the cosmoplanetary order of co-evolution of man and Nature. This block should be mainly directed to the formation and provision of demographically conditioned needs of human existence, family, personal development, contributing, above all, to the realization of physical survival of man and humanity in the global world. It should be noted that measures to ensure the objectives of the second block are mainly associated with scientific and technological activities, with innovative technologies of nature-saving technologies.

The third block of the strategy – socio-partner-co-evolutionary – is designed to create organisational, managerial and legislative prerequisites for the development of productive interaction between all subjects of national revival and development through the voluntary pooling of existing diverse resources and conscious responsible participation in the satisfaction of actual private and public interests. Methodologically, the approach that cooperation, partnership, mutual assistance and intellectual and cognitive enrichment are historically the main way of human development should prevail here. The opposite rigid competition, although it contributes to a certain extent to the solution of quantitative problems of growth, turns out to be misfortune and misery for the majority of people, and therefore in essence distorts or neglects the humanity of the process of social reproduction. The realisation of humanity through the wide development of social partnership relations suggests that partnership is the main economic mechanism for the revival and development of the Ukrainian nation, ensuring the growth of well-being of the entire population of the country. The third block of the strategy has an object primarily of social "matter", which forms and realizes the problems of interaction between the subjects of the process of national development.

The second and third main blocks of the anti-crisis national revival strategy should have a set of several problem-targeted national programs, which could really orient to ensure qualitative changes in the relevant areas of activity.

Conclusions. These methodological provisions allow us to conclude that in the current fiercely competitive global world each subject of the global economy has its own interest and if a country does not realize it, it becomes an object of external influence. This turns into decline for it.

It is up to the one who is in trouble to save himself. Socio-economic revival is possible only through uniting our own efforts and through creatively responsible realization of our national potential.

At the same time, it is necessary to understand that the state-power as the main subject of transformational changes can productively realise its vocation to develop and implement the Great Common National Project through the comprehensive deployment of its neo-directive function, uniting all economic entities, the growth of national well-being and the creation of real conditions for the self-realization of individuals. In this regard, it is necessary to realize the need for a radical change in the methodology of research of the modern economy and world understanding on the principles of the latest post-non-classical human-dimensional science, which is directed to the study of the inner spiritual world of man and the justification of a new paradigm of spiritual-noosphere-sustainable development.

Further attention of the scientific community should be concentrated the sake of survival in the global crisis world.

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DOI https://doi.org/10.30525/2592-8813-2024-spec-12

REGULATORY ASPECTS OF CROWDFUNDING PLATFORMS AS AN EMERGING PART OF ALTERNATE FINANCE MARKET IN EUROPE

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Abstract. The article is devoted to the Regulatory changes in crowdfunding market in the EU, associated with introduction of the new Regulation (EU) 2020/1503, applied from November 10, 2021, that introduced uniform and centralized supervision over the crowdfunding platforms, posing new obligations, financial commitments, and challenges for the existing and operating market players, that by introducing this regulation *de facto* have been equated with financial institutions. The paper reveals the marked background and underlying factors, causing the necessity of this regulation; it also outlines, from one hand, the benefits pertaining to transparency and investor protection it introduces, but, from the other hand, the main hurdles the crowdfunding platforms faced, that made ESMA initiate the prolongation of transition period twice, totaling one year. In the conclusion, the author provides it opinion on the prospective changes in the outlook and structure of crowdfunding market and its development potential in new legal environment.

Key words: crowdfunding, crowdfunding platforms, lending-based and equity-based models, Regulation (EU) 2020/1503, RTS, alternate finance, ESMA, EBA, ECSP authorization.

Introduction. Crowdfunding is a relatively new concept in today's world of finance. The ultimate idea of crowdfunding is that a platform as an electronic marketplace brings together persons that possess and have intentions to allocate their free funds as the investors and those who needs funding as the borrowers or business owners. Crowdfunding is also associated with non-business purposes like charity. Such platforms appeared at the turn of the century while 2005 was the year the first crowdlending platform, Zopa, was launched in the UK [1].

The rapid development of alternate financing market was largely due to the fact commercial banks as the conventional source of funding for business, became increasingly precautious after the financial crisis of 2008-2010, including limitations in their credit policy imposed by the mother companies related to mandatory minimum amount of borrower's contribution, excluding from financing non-traditional sectors or business fields where the bank analysts lack expertise, etc.

Never the less, until recent times the banks remained beyond competition in terms of interest rates. Yet in the mid-2022, the banks rates were record-low until, responding to global uncertainty and growing inflation, the ECB unprecedently raise interest rates 10 times in a row within 14 months, from July 2022 to September 2023, leaving refinancing rate record-high at 4.5% (up from 0.0%) [2]. With the forthcoming increase of EURIBOR, from around -0.55% in mid-2022 to 3.89% in the beginning of November 2023 [3], the loan interest rates of commercial banks became much less competitive. For example, in Latvia average interest rate for business loans, offered by commercial banks, increased from 2.2–2.4% in mid-2022 to the record 6.74% as of 01.09.2023 [4]. In these circumstances, the platforms, generally offering interest rates from 9% (for mortgage-backed loans sometimes even lower), became competitive also in terms of the cost of capital, which is privately sourced and not tied to the interbank market.

The absence of a uniform regulation in crowdfunding sector in Europe leaded to the emerging "grey sector", where, in the conditions of low to no transparence, the platforms were able to operate on their own, including, in some extreme cases, placing misleading or purely fake investment offers and/or intended misappropriation of investors' funds which, prior to Regulatory requirements, could

be held "in one basket". Albeit called an "investment account", in many cases it as nothing else but another payment account of the platform, technically not segregated from its operating account, which did not prevent free and unlimited money transfers between the accounts. One of notorious cases includes the failure of two platforms in Estonia, Kuetzal and Investio, both founded by entrepreneurs with Latvian origin to fulfil their obligations to investors in early 2020 [5]. National regulation in the field of crowdfunding, where the respective law was adopted (e.g., Lithuania, where crowdfunding law entered into force on 01.12.2016) *de facto* meant the opportunity of the crowdfunding operator to work in legal field within the country and was irrelevant to its possible cross-boarding operations.

The article aims to outline and explain the main benefits brought to the market with the EU Crowdfunding Regulation, including transparency of operations, protection of investors, anti-money laundering and business continuity consideration. From the other hand, it addresses the main problems and challenges the potential and especially operating crowdfunding platforms faced to comply with the new Regulatory requirements. In the conclusion, the author expresses an opinion on how the development prospectives of the emerging crowdfunding market will be affected.

The methods used in the research are: comparative analysis, synthesis, statistical data analysis, review of legal acts and case studies.

Limitations of the research: under "crowdfunding market" and "crowdfunding platforms" in the context of this article we understand only the crowdfunding service providers in the context of Regulation (EU) 2020/1503 [6], i.e., the platforms that provide classic crowdfunding service to business by collecting a pool of investments to be further issued in the form of a loan (lending-based crowdfunding) or invested in equity of a company (equity-based crowdfunding). The research does not cover P2P models, where direct investments without pool financing are made via the platform, including direct investments in consumer loans, and sale of claim rights, when the platform offers the investors to buy a share in a previously issued loans (in Latvia the latter is popular and used by the largest platforms, such as Mintos or Twino). The reason of this exclusion is that these types of platforms are out of the scope of Regulation (EU) 2020/1503 and European crowdfunding service provider (ECSP) license. The other models in most of cases are subject to other legal acts and require another type of license, for example, in Latvia Mintos and Twino model requires the license of investment broker or credit institution.

Basic theoretical and practical provision. The main changes introduced to the European crowdfunding market by the new regulation need to be treated in complex as they are not limited to the provisions of the Regulation (EU) 2020/1503 (EU Crowdfunding Regulation). These have been significantly expanded and detailed by Regulatory Technical Standards (RTS), followed the Regulation, and developed by European Securities and Markets Authority (ESMA) [7] and European Banking Authority (EBA) [8]. Most of them have gained the status of a separate Commission Delegated Regulation, supplementing the EU Crowdfunding Regulation [9]. Both authorities have issued numerous explanations and clarifications regarding the RTS. In addition, as with the EU Crowdfunding Regulation coming into force became equated with financial institutions, many local Regulatory authorities issuing ECSP authorization rely to other documentation, e.g., guidances, of the EBA for banking and credit institutions either as strong recommendations or even mandatory requirements for the ECSP authorization. Also, the previous Regulatory practice and "good practice" of the financial sector in the EU countries differ, thus local Regulators may sometimes supplement the requirements to the ECSP applicants in their country.

The most important and crucial requirements to crowdfunding platform operators according to the EU Crowdfunding Regulation in its extended interpretation, as described before, include the following:

1. *Separation of investors' and borrowers' funds from platform funds.* Those platforms that do not provide payment services themselves (do not hold a license of payment institution) or do not have

ready software available for this purpose, are obliged to contract and use the service of a EU licensed payment institution that provides the respective solution for crowdfunding platforms and obtain the status of its payment agent, requiring an approval of the financial Regulator in the jurisdiction of the payment service provider. All money transfers of platform's clients are made through a licensed payment institution, which opens virtual accounts for both investors and project owners (VIBAN), but the money is physically stored in the sub-accounts of the depository bank (custody bank), to which the crowdfunding service provider itself does not have access. Through the same VIBAN accounts, the loan is also repaid, income tax deductions are made, in cases where the platform investor is an income tax subject. Such a solution for existing platforms requires significant changes in the IT system, integrating it through an API with the system of the payment institution, since the execution of transactions, data transmission, accounting and storage must be synchronized. This provides protection of investors' funds, making them totally unreachable for possible misuse or appropriation for crowdfunding service providers. The contracted payment institution also is responsible for AML/CTF issues in relation to the ECSP's customers.

2. *Risk management.* To obtain the ECSP authorization, the applicants need to have in place a sophisticated system of risk management, including procedures and policies of management of operational and business risks, which is largely comparable to risk management apparatus in banks or payment institutions.

3. *Business continuity*. The ECSP candidates need to present to the Regulator a comprehensive business continuity plan, explicitly describing how the operator company is going to ensure the continuity of its business operations, especially maintenance of its critical functions. It should clearly show the availability of resources, backups in place and evident sequence of actions, the viability of which needs to be confirmed by regular stress-testing.

4. *Independence of critical business functions and three levels of defense.* Albeit not explicitly defined in EU Crowdfunding Regulation, Regulators pay enhanced attention to the applicant's organizational structure, including clear hierarchy and subordination of duties, previous experience, and competence of company's management. The company needs to have sufficient human resources for carrying out its operational duties; for top management position overlapping with presence in other businesses is critically assessed in terms of working hours available for execution of their functions. In most of cases, it is recommended or compulsory to have a separate Management Board and Supervision Board as well as in-house risk management and auditor function that should be independent in their responsibility and decision-making. Personal data of Risk Manager, Internal Auditor, Compliance and Data Protection Officer need to be submitted and approved by the Regulator. A so-called 3-lines of defense mechanism is aimed at maximum protection of shareholders' interests.

5. *Prevention of interest conflict.* To prevent a conflict of interest between platform owners and borrowers, the borrowers cannot be persons related to the ECSP (those holding 20% or more capital shares, as well as platform officials and management related parties).

6. *Prudential safeguards.* ECSPs must ensure compliance with prudential requirements throughout their operation. In simple words, these are the minimum capital requirements, which correspond to the higher of the following amounts: EUR 25,000 or a quarter of the actual budget overheads of the previous year. Compliance with prudential requirements may take one of the following forms (or a combination thereof): (a) Common Equity Tier 1, the detailed composition of which is set up by Articles 26–30 of Regulation (EU) No 575/2013 [10], namely – the sum of the share capital, share premium, retained earnings and reserves after deduction of investments in intangible assets; (b) an insurance policy covering the EU territories where the crowdfunding service provider operates. In practice, there is little to no opportunity to obtain an insurance due to lack of such practice amongst the insurance companies to assess the risks; therefore, the only means of compliance with this requirement is to have the capital in place.

7. *Information and data security.* Enhanced requirements to the security of crowdfunding platform's IT system, the protection of data within the system and investors' data are in place, inter alia, in the view of prospective Digital Operation Resilience Act, which will come into force in January 2025 and which the crowdfunding platform will be subject to. A separate requirement is 2-factor authorization for platform users. This requirement follows from the spirit of the law, as it stems from the standards set by the EU Second Payment Services Directive (PSD2) [11], which requires stricter authentication requirements for online payments. ECSPs do not provide online payment services, however, when implementing the EU Crowdfunding Regulation requirements, the IT system becomes integrated with the payment service provider's IT environment. Therefore, to ensure the security of payments, crowdfunding service providers should implement an additional authorization mechanism when the user logs in to the platform, that is, not just by entering the username and password, but also, for example, a code that the special subscription service sends to the user's phone number.

8. *Information disclosure about the project and the borrower.* The EU Crowdfunding Regulation obliges ECSPs to prepare and provide information about the investment offer, including the project and project owner (borrower) in a certain format, by filling in and downloading the so-called KIIS (Key Investor Information Sheet). The borrowers must obtain a LEI (Legal Entity Identifier in financial markets).

9. *Credit procedure and project scoring.* Despite the platform operator does not carry out financial responsibility towards the investors if the project fails, it is responsible for duly assessment of the investment offers prior to placement on the platform to minimize risks. The Regulator introduces the requirement to formalize and describe in details the process of assessment of the project and the borrower, including a scoring procedure that is mandatory. It should be disclosed to the investors, including the mechanism of determination of the price of the investment offer – the interest rate offered to the investors for participation in the loan. The loan portfolio quality needs to be monitored thought the lifetime of the loan, including re-assessment of the loan and the collateral, if applicable.

10. *Loan principal limitation.* Regardless of the specifics of the project, the maximum amount for a loan issued to one borrower or a group of related persons for one project from the funds collected on the platform may not exceed 5 million EUR within 12 months.

11. *Detailed requirements to the categorization of investors and enhanced protection of non-sophisticated investors.* All investors are considered non-sophisticated until the investor is granted the status of a sophisticated investor. It is assigned automatically to those compliant with certain criteria specified in the EU Crowdfunding Regulation or holding a professional investor status according to MiFID 2 [12] while the others to get this status they need to pass a knowledge test in the form of a questionnaire, to be approved by the Regulator. For non-sophisticated investors, the platform is obliged to provide: (a) a) simulation of the ability to bear losses – an automated calculation tool for calculation of of loss of 10% of the value of the investor's net assets; (b) a so-called reflection period, i.e., the ability to recall the investment within 4 calendar days.

12. *Reporting obligations.* must provide annual reports to the Regulator according to a certain form, provided for in RTS, which must include, *inter alia*, anonymized information on collected funding amounts, project sectors, investor countries their categories and number. Information on default rates, or the proportion of defaulted loans for at least the previous 36 months must also be provided.

13. *Cross-border passporting.* To be able to provide crowdfunding services outside the country of ECSP registration, a so-called EU passport must be issued. The crowdfunding service provider needs to notify the Regulator that issued the authorization, providing a list of the Member States in which the it would like to provide the crowdfunding services. The Regulator then communicates the information to the host Member State authority and ESMA, which keeps a register of crowdfunding service providers in which the notification is noted.

Overall, the requirements introduced by the EU Crowdfunding Regulation and other related regulatory documents are aimed at transparency, uniform supervision, investor protection and anti-money laundering at the same time. In author's opinion, the introduction of such regulation was absolutely necessary and inevitable, taking into account that alternate finance market emerged dramatically and becomes increasingly competing with traditional financing, which is highly regulated (in case of banks), licensed in most of cases and supervised by local consumer protection authorities (in case of consumer lending) and selectively licensed depending on a Member State (in case of non-bank business loans), but in the latter situation consumers are not involved as participants of the transaction.

There is a large spread of statistical data concerning European crowdfunding market if we compare different sources, but the author finds reliable the data of Cambridge Judge School, which are presented in the 2nd Global Alternative Finance Market Benchmarking Report and reflected in Figure below. Albeit being a little outdated, these data are based on real company-level observations and, in the absence of official market common statistical data, based on submission of mandatory reports by market players, are close to the most precise.

From 2013 to 2019, the European online alternative finance market volumes grew consistently from just $0.4 billion in 2013 to $12.2 billion in 2019. However, in 2020 the survey reported a drop to $9.9 billion, representing the first decrease in market volume since 2013. The authors of the report emphasize that the main reason of this decline was not related to consequences of Covid-19 or overall economic situation, but rather to the decreased number of participants of survey. The analysis of was based on 631 company-level observations in 2019 and 654 observations in 2020, while 117 platforms that did not repeat participation but remained in operation in 2019 and 2020.

The information on the number of participants of the research given in the reports gives an interesting insight on the possible number of crowdfunding platforms, which are the subject of the EU Crowdfunding Regulation. The total number of crowdfunding platforms in Europe, revealed by the authors of this research, including contributing participants and those who rejected their participation, in 2020 was 671. Crowdfunding models described in the aforementioned report and the list of participants of the research enables to conclude that in the context of the research the term "crowd-

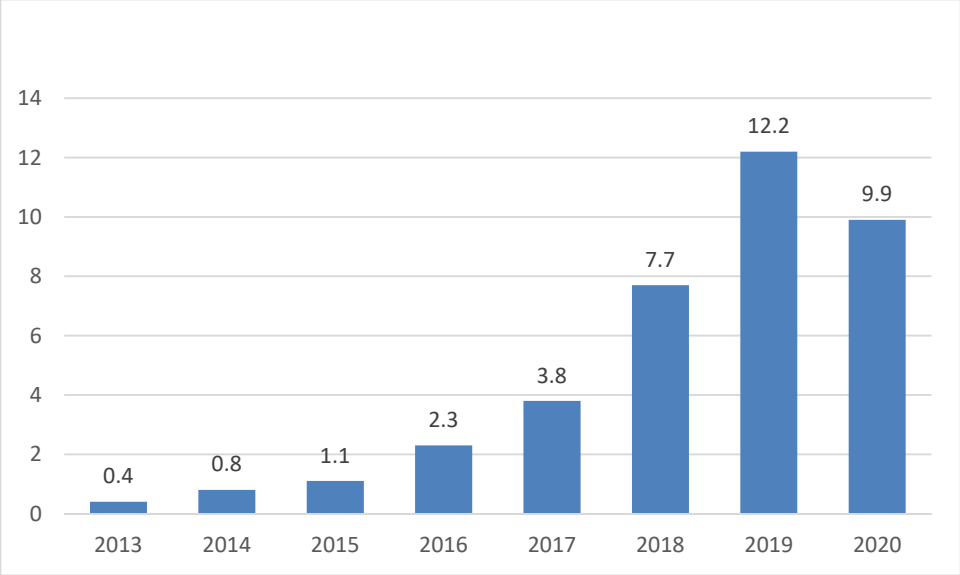

Fig. 1. European Online Alternative Finance Market Volumes 2013-2020, billions USD (Excluding UK)

Source: The 2nd Global Alternative Finance Market Benchmarking Report [13]

funding platforms" was applicable both to classic (pool-collection-based) crowdfunding for business purposes which is the subject of the EU Crowdfunding Regulation, and P2P crowdfunding, or direct online loans, which is not. Unfortunately, it is not possible to provide exact figures on the number of platforms which are subject to EU Crowdfunding Regulation, but it can be assumed that these are at least one-half, but, averaging estimation data from different sources as of mid-2023, the author assumes this number around 450. These platforms, not counting new ones, are potential candidates for ECSP authorization.

However, if we compare this number with the number of issued authorizations, published by ESMA on its web-site [14], which on 05.11.2023 was 75, it can be concluded that less than 20% of total estimated number of crowdfunding platforms, subject to the EU Crowdfunding Regulation, obtained authorizations. It can be added that in Latvia two crowdfunding platforms obtained ECSP authorizations from local Regulator, first from former Financial and Capital Market Commission and second from the Bank of Latvia. Interestingly, these platforms, CrowdedHero and Capitalia, represent two different types of crowdfunding: equity-based and lending-based, respectively. The second platform was created as a diversification of operations of non-bank lending institution while the first one is created "from scratch".

On November 10, 2023, the final transition period, initially assumed by the Regulation, entered into force on November 10, 2021, for one year and prolonged twice, for 6+6 months, by the initiative of ESMA, eventually expires and all platforms which are subject to the EU Crowdfunding Regulation and not obtained their license from local Regulator, will be forced to cease or suspend operations.

In author's opinion, the main reason for the repeated prolongation of the term was the complexity of the EU Crowdfunding Regulation and related documents, which was totally new not only to the market participants, but also to their Regulators. RTS, followed the Regulation, experienced several amendments until final editions and the Regulators requested additional documents or significant corrections in already submitted documents from the applicants. But possibly the main challenge and the most expensive, time- and resource-consuming upgrade for the existing and operating platform was the introduction of a VIBAN-based payment solution. To implement this, the platforms needed to develop or order a completely new software and to handle the payments in operation, including servicing the previously issued loans and integrating the flow of payments into the new system.

For investors, the author sees only benefits, except for a more complicated registration process, as the new Regulation provides a completely different level of protection, taking at least absolute segregation and safekeeping of their funds, but also providing more information and transparency.

Easy and transparent Europe-wide provision of services by passporting is another decisive advantage of the EU Crowdfunding Regulation, both for the investors and service providers.

As regards the possible future development outlook, the author believes that, despite the reduction of the number of operating crowdfunding service providers, the total volumes of the market will not decrease, as due to a lower competition the remaining market players will be capable for intensive growth by providing technically advanced solutions, better quality of offers and higher protection of investors that will lead to a growth of trust from the side of investors from one side and increasing interest from the side of the borrowers in the conditions of increasing growth of capital and existing limitations to obtain a loan in traditional markets.

Conclusions. The adoption of the EU Crowdfunding Regulation was an inevitable and ambitious step forward in the field of organizing the emerging alternate finance market, ensuring unified supervision, and protecting consumer rights. In the author's opinion, this will contribute to the development of the market by increasing transaction transparency and investor confidence. In time, it may turn into an even more significant competitor in the lending market of banking services.

Each new legal act has its own shortcomings, including gaps in the law, which are gradually filled by amendments and supplementing regulations, accumulation of market practice, and there is

a great potential to start creating good practices, establish associations, platforms to cooperate with local Regulators. Exclusion of non-compliant market players will free space for steady growth and promoting the development of crowdfunding services market in a new quality, and its sustainability.

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DOI https://doi.org/10.30525/2592-8813-2024-spec-13

ECONOMIC RESISTANCE OF THE POPULATION – PROBLEMS OF MEASUREMENT, MONITORING AND FORECASTING

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Abstract. Underestimating the consequences of state actions in terms of potential public reactions always leads to negative outcomes and introduces additional risks to the life – rhythm of a country, continents, and at times, even the entire world.

Experts and practitioners assert that numerous errors and miscalculations by the state are, in most cases, associated with a lack of understanding of public sentiments and expectations.

A solution can be found in a model for calculating behavioral factors of the population, representative of different social classes. At an expert level, the primary observable forms of economic resistance by the populace, inherent to specific regions or the entire nation, are determined. The calculation of an integrated resistance indicator and its monitoring is undertaken.

Key words: economic resistance, monitoring and forecasting, form of protest, integral index of resistance (R-index), forecast.

Introduction. A person living in the real economic world has his opponents. "Natural enemies", if we use analogies with the animal world. These are other participants in economic life, whose interests do not coincide with his own, and most often directly contradict them

These enemies are many and strong. First, enemies can be other people: robbers, neighbors, competitors, etc. They encroach on our resources (e.g., disputing a piece of land we consider ours); robbers encroach on our goods; competitors prevent us from achieving our individual goals. Even people close to us sometimes get in our way, too.

In the second place, everyone else. All the enemies of the individual and/or household cannot be counted.

In these eternal conflicts there are always at least two major participants: the controlling object (central government, prime minister, president, Politburo, emperor, dictator, etc.) and the thinking object that is being controlled.

But in addition, big capital constantly defends its interests; often the mafia (sometimes under the guise of local self-government, supposedly independent of the center of power) pursues independent policy. Sometimes the army, sometimes the police, sometimes the secret police, and then there are even more participants with their own economic interests.

In general, there are enemies all around.

The enemies of the average person and household use a variety of means, available to them in this war.

Among them (if we do not even take into account purely forceful methods such as searches, arrests, criminal cases, confiscations, extrajudicial seizures, nationalizations and requisitions) there are very diverse measures of influence and coercion.

But, there is the main (natural) enemy, which encroaches not only on our resources. It encroaches on the most sacred thing – our freedom of thought and our way of life.

This main enemy is the state. It replaces our goals with its own, sometimes neutral for us, rarely friendly, more often alien, even more often hostile.

At least, it tries to do so.

Basic theoretical and practical provision. Let us repeat some words of thinkers of the past and present:

1. The population perceives the state as occupying power (A. Herzen).
2. There are two main types of power: a visiting gangster and a settled Bandit (M. Olson).

The state wages a punitive war against us, and we wage a guerrilla war against it – guerrilla warfare. (V. Shenderovich)

3. The state by various means, but with the help of more or less elaborate propaganda tries to impose on us the idea of its own sanctity, the legitimacy (or even the divine election) of its rulers, the priority of its (the state and/or the ruler's) interests over our selfish (petty and selfish) ones.

Sometimes this invasion takes place under the cover of national and/or religious traditions, sometimes under the guise of state security requirements, and sometimes simply for the purpose of intimidation.

The state, with the help of all means of influence available to it, claims that all it does is to think and worry about us day and night, and convinces us that we also love it, are proud of it, share its goals and are ready to sacrifice ourselves solely in its (the state's) interests.

It is wrong. Scientists and experts-practitioners have no doubt that numerous serious errors and miscalculations of governments in a large number of cases are associated with these misconceptions and lack of understanding of the moods and expectations of the population. Hence the unreliability of forecasts of the consequences of the authorities' actions.

This unpredictability of consequences arises constantly when behavioral factors that distort the results of decisions made by the state are not taken into account. There is always some mysterious “delta”, i.e. deviation of real consequences from the results planned by the authorities.

In the real practice of governance, the authorities do not listen to the opinion of the people, any talks on this topic, as a rule, are reduced to little constructive and very unspecific talks about the need to take into account the “human factor”.

In general, regimes without strong feedback do not live long, nobody likes them, nobody protects them in critical periods, and they collapse from relatively insignificant (both external and internal) shocks or combinations of unfavorable circumstances. Here it is appropriate to recall the well-known cases of observed sudden collapses of non-democratic regimes, and in very different conditions and forms.

For example, the mass overthrow of monarchies revered by the people a hundred years ago.

If we consider the example of the Russian Empire among other perished empires of Europe (the collapse of the German and Austro-Hungarian empires, the collapse of the British Empire), its demise was preceded by an unprecedented peak of people's love for the adored monarchy in 1913 (the 300th anniversary of the dynasty), accompanied by mass prayers for the health of the imperial family and all other available manifestations of national love, rallying all sectors of society, including opposition-minded. Immediately after this tide of love in 1914 and 1915, the country was hit by a ninth wave of unimaginable patriotism and other manifestations of national unity, superiority and imperial pride. This heat somewhat subsided by 1916, and in 1917 everything was over...

But here is a more recent and no less large-scale example – the collapse of the USSR. When it came to aggravation, it turned out that nobody: the army, the party apparatus, the secret police, the punitive apparatus, local authorities and organizations, and most importantly – the peoples of the Union – were going to defend the USSR (their beloved Motherland). No one came forward in defense, not a single word. On the contrary, the rise of public spirit, new moods, new expectations...

It should be noted that such collapses are most often sudden (by historical standards), and the factors that caused them are most often poorly understood even in hindsight. Maybe they (reasons) are irrational at all. It is impossible to predict them. But still we will try.

Resistance of the weak. Let us state: the importance of analyzing and forecasting the behavior of the population in response to the actions of the authorities in real political and economic practice is beyond doubt.

It is also obvious that it is the underestimation of "step-by-step" reactions of the population in the "step-by-step" economic policy of the authorities that constitutes the main reason for the failure of most reforms with simultaneous dissatisfaction and disappointment of the population in many countries.

It is like in chess: the most brilliant plan will not be realized if it does not take into account the reaction of the partner. That is why it is dangerous for all states to have self-righteous leaders who try to rule and dispose of people as uncomplaining objects, and do not intend to take into account their reactions.

If a central authority believes itself to be the only, eternal, sinless and omnipotent one, more often than not it is doomed.

Let us turn to the theory. The power, which does not take into account the reaction of the people or neglects it in the course of realization of its unilateral economic policy, applies various measures of influence and coercion. James Scott's classification is well known, who divides these measures into material, statutory and ideological [1]. He also owns a remarkable statement characterizing the reaction of the population to the coercive measures of their governments: "I obey, but I do not obey". This already says a lot. But let's take it all in order.

So, material measures of economic coercion: legislative and regulatory restrictions, manipulation of resources, oppression of freedoms in general and entrepreneurship in particular. Underpayments, delayed payments, wages, aggressive taxes, extortion systems, etc.

Statutory includes public humiliation of the non-state economy – "speculators", "thieves". A pensioner is a "parasite", a student a "slacker". "Intellectual"-abusive. The word "commercial" is a rude swear word.

A house burned down – it means that a commercial firm illegally stored gasoline in the basement. Depositors cheated – commercial bank is to blame. Low quality of education – commercial university. The same is true of the opposition – corrupt, vain, hungry for power.

Typical techniques: delimitation of platforms, the policy of "bread and spectacle", attempts to form an oprichnina.

Ideological measures: patriotism is the exclusive and basic virtue of the government; all those who resist the policies of the current government are enemies: the predecessors of the current regime are enemies, the supporters of the predecessors are also enemies. The opposition on the left is also enemies. And on the right... And in general, any groups of the population can be declared enemies by the authorities.

By the way, the list of current enemies can be expanded by adding to the admirers of the past (e.g., Communists) active and convinced ardent admirers of the beautiful future (e.g., Euro-optimists).

Seriously striving for a radiant future is not a good thing either...

It is not by chance that we use the expression "current" here, in the sense of "acting at a given moment of time". At another moment of time everything may change. Current power, current opposition, current interests, enemies, etc. It is at the current stage that current measures of influence are applied to current enemies.

But here is what is important: in fact, the people have their own opinion about all these measures; they treat them indifferently, different groups of population – differently, but all without any reverence.

Let us consider the reactions of the population one by one.

How the population responds to the material impacts of the authorities:

1. Explicit and hidden sabotage, shadow activities, evasion of payments and other obligations, damage to property, stealing... In general, there is an obvious dialectical thesis: the state does not respect the property of the people, their property rights – the people reciprocate.

2. On statutory measures of influence: stories about stupidity of bosses, senselessness of their orders, stories about criminal past of current leaders and current abuses...

3. Ideological: anecdotes, counter-propaganda, protest votes, demonstrations, emigration.

Since the advent of the Internet, the capabilities of the public have changed dramatically. Whereas earlier theory spoke of "hidden" messages from society, explicit ones have emerged. New Internet-related opportunities have been added to the population's forms of protest. And in social networks, the most real wars are breaking out. "Bots", "fakes", "hacker attacks", "viruses", "interference in elections", flash mobs... Here the picture for government officials is even more frightening.

Dispersing demonstrators with batons is becoming obsolete. Although some people try to combine weapons from different eras... Further, the classics of modern economics distinguish the main irrational factors affecting the behavior of the population and macroeconomic indicators of the country as a whole: trust, fairness, stories, abuses, money illusions [2]. In many countries these factors are not considered at all, their changes are not studied, their impact on the economy is not forecasted.

Meanwhile, today the general information background is as follows: trust is undermined, justice is vilified, illusions are debunked, abuses are on everyone's lips, etc. It is against this background that the economic resistance of the population (and business, by the way) emerges and develops.

The nature of economic resistance is extremely complex and interesting, it has a clearly expressed dual character, it is caused by both "external" and "internal" reasons.

The first type of resistance of the population is actually a direct response to sharp and or ill-considered actions of the authorities. Using the terminology of financial markets, we can say that it is a reaction to news.

Classic: a bounty in India for the head of a killed snake caused the emergence of clandestine cobra farms. Compensation during bird flu led to the killing of many innocent ducks, chickens and turkeys.

More recent examples: the monetization of benefits in Russia caused unexpected backlash in the form of mass protests by pensioners, veterans, and the disabled. Issuance of "Yulina thousand" in Ukraine caused reactions of the population in the form of buying up currency, Raising the single tax caused entrepreneurs to go into the shadows, exit from businesses, etc. [3]. These things are quite obvious for us.

But there is also a little-explored internal logic and inertia of people's behavior. These are traditions, historical habits, ingrained illusions, age-old misconceptions, and much more. It is important that these deep processes are not seriously affected by any actions of the authorities.

Alcoholic moonshine, communal outlook in Russia, individual (closed-hutorian) behavior in Ukraine, buying gold during the wedding season in India, irrational love for the dollar among the population of developing countries... These fundamental features of mass behavior of the population are not affected by the decisions of the authorities at all.

So, the interaction of endogenous and exogenous factors that induce economic resistance is not clear and has not been studied. It is only clear that there can be scenarios of economic policy, when external and internal factors generating economic resistance compensate each other (people are stroked on the wool).

But other scenarios are also possible, when the unjustified policy of the authorities intensifies manifestations of popular discontent. Then the power collapses, or becomes a tyranny (and thus collapses somewhat later).

In this report, we will touch upon rather obvious reactions of various population groups, which are amenable to relatively simple measurements. For example, for today's post-Soviet countries, we propose the following realistically observable forms of economic resistance (Tables 1).

Table 1

The Forms of Economic Resistance

Form of protest	Groups of protesters
Increase in the volume of currency purchase	The population of the country
Reduction of bank deposits volume in national currency	Mass Affluent class
Increase in bank deposits volume in foreign currency	Mass Affluent class
Increase in non-bank savings	Mass Affluent class, Pensioners
Deterioration of attitude to labor	Workers and Employees
Absenteeism, tardiness	Workers, Employees
Sabotage, damage of equipment	Workers, Employees
Stockpiling of foodstuffs	Mass Affluent class, Pensioners
Labor emigration	Intellectuals, low-paid employees
Closure of enterprises	SME (Small Medium Enterprises), Self – Employed
Going into the shadow	Mass Affluent class, SME (Small Medium Enterprises), Self – Employed
Capital outflow	SME, Large Corporate
Tax optimization	All participants
Evasion from mobilization	The population of the country
Protest actions :pot marches, road closures	?

This list can and should be changed, supplemented, reduced – only some part of it may be essential, sometimes only one component may be decisive (then we will talk about a one-parameter model of resistance). It is also possible (and sometimes necessary) to analyze in more depth, including the territorial component of economic resistance.

A detailed analysis of the behavior of special large groups: the military, special services, police, civil servants, self-employed, pensioners, etc. is probably required. In addition, the behavior of the population of certain territories (for example, autonomies or special zones) may be of special interest. However, the qualitative picture of the main forms of economic resistance is clear.

We can treat the above forms of protest as autonomous factors describing the process of economic resistance.

Let ri (t)-the value of the i-th autonomous resistance factor at time t, then its change Δi over the period (to; t1) can be represented as a normalized difference:

$$\Delta I = (ri\ (t1) - ri\ (t0)) / ri\ (t0).$$

Then the integral index of resistance (Resistance) as a function of time can be represented in the traditional additive form:

$$R(t) = \sum ki \times \Delta i,$$

i=1-n

Here the multipliers ki play the role of weighting coefficients of individual autonomous resistance indices. The system of these weights should most likely reflect the contribution of each of the selected indicators to the inhibition of the national economy and in practice requires in-depth research.

Let us note the possibility of another approach: weighting coefficients can be used by the researcher as indicators of "danger to the state", for example, in terms of the probability of social storms, riots and shocks caused by their growth.

It is necessary to study the accumulated experience: which of the authorities' decisions in the field of economy cause the loudest and most formidable protests of the population.

If a more careful study is necessary, we should consider the same problem in a kind of functional-spatial aspect, i.e. by introducing the functions Rmn (t) reflecting the economic resistance of the m-th category of the population living on the territory n and thus investigate the matrix:

$$\| \text{Rmn} \|.$$

In fact, the reality is even more complicated, since a truly meaningful analysis involves the study of a 3-dimensional matrix

$$\| \text{r mni} \|,$$

element r mn of which describes the response of the i-th type of the m-th population living in territory n.

Moreover, if we take into account that the indicators r mn are functions of time (and not continuous), we can get an idea of the complexity of the problem under consideration, i.e. the problem of practical accounting of behavioral reactions of the population to the tactics and strategy of the government's economic policy.

Monitoring. The question of the dynamics and graph of the function R(T), as well as the methods of its study, remains open and unexplored. We have to find out which features of the graph contain signs of resistance fading in the future, and which ones carry the threat of social explosions, protests, revolutions, etc. Within the framework of this publication, we will only note the obvious similarity of this task with the studies of financial markets, where the disputes between the supporters of technical and fundamental analysis have not revealed the winners.

Let us note the possibility of using fundamentally simpler forms of express resistance measurements at the macro level, which do not require special statistical studies and detailed calculations. Let us assign one of five possible values to each of the selected types of economic resistance:

$\delta i = +0.5,$ if in the period under consideration (t0, t1) the resistance by indicator è has slightly increased;

$\delta i = +1,$ if in the period under consideration (t0, t1) the resistance for indicator i has increased strongly;

$\delta i = 0,$ if during the same period the resistance by indicator i did not change;

$\delta i = -0.5,$ if the resistance slightly weakened;

$\delta i = -1,$ if the resistance has weakened significantly.

In this formulation, the integral index of economic resistance will have the form:

$$\delta (t) = \sum \delta i,$$

$i=1 - n$

and the R-index (resistance index) will be written in the form:

$$R(t) = \delta (t) / n.$$

In this case, the values of the R-index will fluctuate in the range [–1; +1].

It is necessary to clarify the problem statement and define what the expressions “strongly” weakened, “somewhat” weakened, etc. mean. At least two methods of specification can be applied here. Under the first one, we identify some threshold value

q and claim that the resistance index of the i-th type has “strongly” increased or decreased if the value of the i-th factor has changed by more than q during the period, i.e.

$$| \delta i| = 1,$$

if the inequality is satisfied:

$$|\Delta i| \geq q.$$

For example, before starting the calculations, we assume that if the change in an indicator for a certain period exceeded 10%, it is considered "strongly" changed.

The second method is as follows: an indicator is considered "strongly" changed if its increment (positive or negative) for a period exceeds its increment for the previous period.

Forecasting. The dynamics of the R-index will be reflected by the graph of a broken line between levels -1 and +1, which is a very useful tool for practical tracking of the dynamics of protest moods and their short-term forecast.

The rapid assessment and primary interpretation of the results obtained by this method is as follows. The values of R-index for the period under study close to minus one mean that the population has come and or is coming to adapt to the economic policy of the authorities; positive values – the presence of economic resistance; values close to one – threatening conditions. For more in-depth conclusions, more in-depth studies on calibrating the scale of R-index values will be required. However, we note that the alarm signal for any authority is the crossing of the zero line by the R-index from bottom to top.

If the application of weighting coefficients ki seems necessary to the researcher in this case as well, the formula will take a familiar form:

$$R(t) = \sum ki \times \delta i,$$

i=1 – n.

An attentive and inquisitive researcher, based on the information available on the Internet, will be able to construct R-index graphs independently.

For example, with regard to Ukraine, our colleagues and collaborators noted the growth of the national R-index in 2012–2014, which may well have been a harbinger of future revolutionary upheavals.

Let us note the purely instrumental effect of the proposed index. Each realized and even assumed action of the authorities can be assessed in terms of growth or fall of the R-index, which in this formulation can be successfully used as a basic simulation express model of reactions and economic protests of the population.

Finally, a completely different (short-term operational) formulation of the same problem is possible. If there are difficulties (and they arise) with obtaining reliable and sufficiently regular information about changes in individual reactions of the population, it remains possible to carry out the forecast of economic resistance in the following way.

When determining the values of autonomous resistance factors, it is possible to use expectations of forthcoming changes rather than their changes already achieved during the time period under study. This approach is a typical expert study in content; in addition, the values of expectations can be obtained through sociological surveys or specialized network analyses. That is, we will assign a value of 0 to the i – component of the R-index if population surveys or expert opinions or network analysis show that the expected resistance to this factor will not change in the near future. A value of 0.5 is assigned if expectations on this factor are moderately negative; a value of 1.0 is assigned if active reactions of this type are to be expected.

The basic formula of the index remains the same, but the meaning of the obtained results is different: here we are actually talking about forecasts for a short period and factor-by-factor modeling of expected reactions of the population (or groups of the population) to news and even rumors about certain actions of the authorities or forthcoming economic changes. The natural lifetime of such monitoring and forecasting is the time before the appearance of new news (a week, a month).

Conclutions. The most important issue of behavioral synthesis has been left outside the scope of this publication. By analogy with natural sciences, we can formulate direct and inverse tasks in the research of economic resistance. Direct task: we know the actions of the authorities and external

conditions – model the reactions of the population. Inverse problem: the desired reactions of the population and external conditions are known – to determine possible actions of the authorities ensuring favorable calm of the people.

In the given formulations R-index is a tracking and even anticipating indicator of protest reactions of the population, which in our opinion is important for the economic theory and practice of predicting protests, rebellions and revolutions.

The authors consider this area open for further development of models for predicting mass resistance of the population, their calibration, detailing and cocretization.

The authors take this opportunity to thank the Board of Trustees of the Institute of Political Philosophy.

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DOI https://doi.org/10.30525/2592-8813-2024-spec-14

GLOBAL MONEY AND GLOBAL CURRENCY

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Abstract. The article is devoted to consideration of the possibility and necessity of the emergence of Global Money and the form in which it can exist. The author considers this problem both from a theoretical and practical points of view. In this regard, the problem is divided into two parts, which concern, respectively, Global Money (as an economic category) and Global Currency (as a form of their existence). The author assumes that real competition for Global Money can take place between the money of the past (commodity money, specifically gold), modern money (credit money of commercial banks) and future money (information/ smart money). As for the Global Currency, based on the current schedule of political and economic power, there is no real alternative to the US dollar in the next 1-2 decades. However, most likely, it can be expected that the form of functioning of the Dollar will be the CBDC of the Federal Reserve.

Key words: Globalization, Global Money, Gold, Cryptocurrency, CBDC, Dollar, SDR.

Introduction. The topic of Global Money has long attracted the attention of researchers. In this connection, we can mention he pioneers' articles of Robert Mandell "A Theory of Optimum Currency Areas" [14] – back in 1961 and Richard Cooper "A Monetary System for the Future" [7] – 1984. The same authors continued to write on the topic of Global Currencies later [15, 3].

And if Kenneth Rogoff asked the question Why Not a Global Currency?[19], other researchers believe that the creation of a Single Currency in general is a conspiracy against Humankind [17].

Of course, views on this problem from various respected international institutions are of particular importance.For example, in 2009 even the United Nations created a commission of experts led by Joseph Stiglitz, which recommended fundamental and comprehensive reforms of the World Monetary and Financial System [22]. The experts of other organizations – the OECD [16], the IMF [11], Asian Institute of Development Bank[1], World Economic Forum [26], Center for Economic and Policy Research – CEPR [5], the US Treasury [25] etc. gave approximately the same recommendations (which we will analyze in or article).

In the presence of such predecessors, it is difficult to offer one's own vision of the problem. Nevertheless, having carried out a fundamental study of the process that we called "Monetary Globalization" [31] and its impact on Money itself [32], we will still risk saying something to add to the previous publications.

If we look at the state of money circulation on a global scale, we will see that the money supply in national markets increasingly "opposes" the commodity mass not of the national, but of the World Market. Under such conditions, even a significant increase in the supply of national money does not lead to adequate inflation, because on a global scale, such an increase does not have a significant impact. And that is why the active Monetary Policy (quantitive easing) of Central Banks of industrially developed countries does not lead to the expected increase in inflation rates, and in many cases we even see deflation.

Money in a Society in which one could buy any means of production (including "living tools", i.e. slaves) as an economic category (i.e. materialized Social Relations) is strikingly different from Money in a Socialist Society and "Shortage Economy",where one couldn't buy many goods and services without state approval. Credit Money in Market Economy also has a different number and quality of credit components – depending on the level of development of credit relations (and from an

institutional point of view – credit and financial systems) in one or another Society. That is, Money, which by definition is a form of combination of all its functions (therefore, it is homogeneous), upon detailed study really turns out to be a "Composite Material" with a heterogeneous structure. This is actually the "atom/corpuscle" of the Economy, which actually has a complex and mobile (changing) structure.

In order to describe this, it is first necessary to understand the logic of the development of the World Monetary System and to identify its main direction. In our opinion, one can imagine the stages of the genesis of Modern Money in the form of a kind of Hegelian spirals:

– from the multiplicity of Commodity Exchange options – through the allocation of numerous equivalent goods – to the emergence of a single monopoly equivalent commodity (metallic money);

– from the multiplicity of monetary metals (copper, silver, gold) – through the bimetallic standard – to the single Gold Standard;

– from the Convertibility of many currencies into Gold – through the Gold Exchange Standard – to the only currency that was exchanged for Gold (the US dollar)...

If one looks at the Globalization Processes in Monetary Relations of recent years and decades from the point of view of the Hegelian dialectic, it is possible to make conclusion that at the current turn of the Spiral of Development , the transition of Quantity (from many currencies of settlement to a single one) into Quality is taking place in the form of creation of Global Money. This process reflects fundamentally new Socio-Economic Relations in the World economic space. Their appearance can mark the result of the struggle and unity of opposites – a Single World Monopoly commodity-equivalent (Gold Money) and heterogeneous signs of Credit and Fiat Money of individual Governments and Central Banks – which through the negation of negation (different "national" Money negates the World and the only Gold Money in its material/stuff form, and then a Single World currency negates various "national" Currencies) come to a Single World Currency, which is based on the generality of credit relations in the Post-Modern World.

Global Money Options. The logic mentioned above explains the futility of attempts to return to Gold as Global Money. The first such attempt was done after the First World War of 1914–18. Then general agreements of the Genoa Conference of 1922 were signed and some countries restored the Gold Standard in limited form (Gold Exchange Standard). However, after the short-time usage of this Monetary System, this idea had to be abandoned. The second attempt took place after the Second World War – this time, in the form of the so-called "Gold-Dollar" Standard of Bretton-Woods Monetary System. It was much more limited (for central banks only) and finally abolished on August 15, 1971 by the US President Richard Nixon. True, another the US President Ronald Reagan established the Special Commission on Gold to research possibility to return the Gold Standard (in any form) as some politicians (Senator Jesse Helmes, Congresman Ron Paul) and economic advisers (Arthur Laffer, Lewis Lerhman) recommended to do.[10] But the only practical Commission's recommendation was the extended minting of gold "ingot" coins (Double Eagle), which are used for investment purposes [24]. For next two decades there were no serious attempts for Gold Remonetization and mainstream economists reach consensus that "a gold standard regime would be a disaster for any large advanced economy. Love of the G.S. implies macroeconomic illiteracy" [12].

However, despite this, projects to return to Gold Money continue to appear from time to time (in Malaysia [18], Lybia [27], ISIS [6], Russia [20]) mostly by political but economic reasons.

As one could see, the Modern Monetary System can easily act without Gold as a monetary metal. So, as the author noted many years ago: "In a hypothetical situation of the collapse of the economic system, a return to gold as a monetary commodity could actually happen, but this will in no way indicate that gold is valid money even in the current conditions. Moreover, one can even imagine such a situation when humanity will be pushed back to an earlier stage of the development of industrial relations. Recall that the restoration of Cambodia's monetary system, which was destroyed by the

khmer rouge, began with the issuance of new banknotes and 1 Cambodian riel was equal in value to 1 kilogram of rice. It is unlikely, however, that anyone will dare to seriously claim that rice can serve as a measure of values in modern conditions" [30].

However, there is nothing wrong with new researching Gold Standard and designing a more efficient Monetary System. One just have to understand that the achievement of this task is connected with the Future but the Past.

The Future of Money has started a few decades ago with new monetary instruments and settlement systems ("electronic money", "debit cards", "home banking" systems, etc.), which now become an element of everyday life. If earlier paper money served as a monetary sign (which replaced gold and silver in circulation), today, thanks to the achievements of the scientific and technical revolution, it is replaced by various forms of "Electronic Money", simple electronic pulses. All this allows us to say with confidence that the process of replacing traditional forms of means of circulation with new, immaterial forms is taking place – a process that the author once coined as "*destuffation*"[1].

Thus, today we can claim that the purely technical process of de-staffing money signs is more and more clearly a manifestation of a more significant transformation in the form of *dereification* of the very function of money as a means of payments.

So, it is looked that new Global Money will be delivered not by Nature (as Gold was) but High Fin-Tech. Meanwhile, the main problem with the Future of Money is that Money itself is becoming a technology. It is a technology for making payments, as well as a means of hoarding/accumulation. Traditional Money provides a less reliable payment system than new technologies. Digital currencies have many disadvantages due to the way the financial system is regulated. However, these problems do not arise due to the imperfection of technologies, but due to the effect of the regulatory system and limitations of monetary technologies. International experts stressed the existence of certain problems that arise from the point of view of Mainstream Economics (a kind of collective "blind spots"), which include: *i*) the hegemony of the idea of a single central currency; *ii*) the monopoly on the national currency, which is created at the expense of bank debt – that is, Credit Money, and *iii*) existence of Central Banks as key element of Monetary Monopoly. These three "blind spots" explain why there is such strong and long-lasting resistance to revising the paradigm of a single, monopolistically produced currency [13, 9].

However, over time, the aforementioned shortcomings can be eliminated in new modifications of the digital currency, and network actors will significantly supplant the traditional subjects of the Global Economy – states and, even, transnational corporations and banks. And then the time of Global Digital Money will come.

We should recognize the relative non-alternativeness of Credit Money (taking into account its qualitative development) but just in the medium-term (within one to three decades). Beyond this period irreversible processes of Digitalization of the monetary sphere will take place, which will change the Essence of Money, leading to the emergence of a new form of money – Information/Smart one.

Global Currency Options. Nonetheless, another question remains open: what will be the global currency that will embody and represent global money in circulation. Ideas about the Money of the Future, which will meet the requirements and essence of economic globalization, have long been not only discussed by politicians and economists, but also, from time to time, take the form of practical measures. First of all, it concerns the search for that monetary substitute, which can really act as a "descendant" of Gold.

[1] The term "destuffation" was substantiated by us in the Ph.D. essay "Some new phenomena in the monetary circulation of developed capitalist countries" (IMEMO, 1984), and was first proposed in an academical article and later in a book [30]. Such a name meant the loss of material form/ stuff' by money. Initially, the author proposed to call this phenomenon "dematerialization" – meaning that it is about the appearance of money signs, for the manufacture of which no materials (substance) are used, since they exist in the form of electronic signals. However, during the discussion the author's attention was drawn to the fact that within the framework of the philosophical discourse, "dematerialization" means the absence of matter, not materials, while even electrons and electronic fields still refer to the Material World (but the Ideal one). That is, the term "dematerialization" would not accurately reflect the essence of the phenomenon: after all, money did not disappear and did not move into the world of "ideal ideas", but only changed its material form in accordance with general trends.

At one time, the authors of a special report of the World Bank, based on the results of their analysis, proposed three potential scenarios for the future development of the International Monetary System: i) preservation of the status quo, based on the leading role of the American dollar; ii) a multi-currency system and iii) a system based on Special Drawing Rights (SDR). They considered the most likely option of a Multi-Currency system, according to which the existing dominance of the US dollar will end shortly before 2025 and will be replaced by a Monetary System in which the dollar, euro and renminbi will be used as full-fledged international currencies [21, 7].

In the same year, an international team of European analysts published its report on the prospect of the emergence of Global Currencies, in which it also considered three main scenarios:

1 – "repair and improvement" of the existing dollar-oriented system;

2 – " move towards multipolarity" with the addition of the euro and renminbi as key currencies;

3 – "renewed multilateralism", based on the growing role of the IMF and, accordingly, the SDR. It is characteristic that, apparently due to greater awareness of the problems of the development of the European common currency, the authors of the Report are more optimistic about the international prospects of the Chinese currency and even consider scenario 2a, "in which only one currency is developed to replace the US dollar...- renminbi" [2, 36–50].

And indeed, all serious decision-makers (both politics and economics) have long since realized that the days of the Gold Standard are so far gone that their plans have been focused on more prosaic but also more real contenders for Global Money.

The transformation of the SDR into an independent World Currency, as well as the emergence of a Global Currency in the process of uniting several "regional" or "collective currencies" (following the example of the Euro), remain futuristically fantastic projects. First of all (but only), because this option requires the creation of a Global Central Bank, and before that – a World Government. And this problem, so far, cannot be solved even in the European Union, where the single Monetary Policy of the ECB is constantly in conflict with the Fiscal Policies of individual Member -States.

Hence, therefore, it is more seriously about the *National currency, which would turn into a Global one due to the absolute superiority of the respective state in managing the Global Economy*. It is necessary to emphasize the Word "management" – it is not enough to remain only with the fact of great economic potential (volume of production, high GDP per capita or export capacity). There is also the *need* to use the currency of such a country, just as people from different countries, in the presence of constant contacts, must determine which language to communicate in. So it is unlikely that the status of the Dollar in the Modern Monetary System is simply an "*privilège exorbitant*", as the then Minister of Finance of France (and later President) Valery Giscar d'Estaing coined it. Rather, it is a Dollar Obligement – pleasant and profitable, but a duty, which is conditioned by the objective state and needs of the Global Economy.

The economy of the United States of America still retains the role of the "core", which continues to develop not according to general rules, but using its special place in the World Economic System. However, the further development and spread of Globalization caused the emergence of a new periphery in the form of newly created markets of a number of countries in Asia and Latin America. So the modern "Periphery" is much more numerous and heterogeneous.

If we look on last years events, than have to agree with George Friedman, a well-known analyst in the field of Geopolitics, who speaks of the "weaponized dollar", considering it "perhaps the most powerful weapon in the world", with the help of which the United States creates a "coalition with countries that are far from the place of hostilities actions, but close to the dollar" (for example, with Japan) [9]. Such "weaponizing" just make a global position of the US Dollar more strong.

In fact, any other currency – either the Euro or, more importantly, the Renminbi – does not meets the requirements of playing role of a leading currency, and therefore is not a real alternative to the US dollar. But in this context, the eventual replacement of the US Dollar with another hegemon currency

will not change much: as in the famous Eastern fairy tale, one Dragon will be replaced by another (euro, RMB...) but the system will not fundamentally change.

If to speak on Multicurrency Option, one has to noted, than existence of even a few (even more so, if a several) International Currencies require close coordination of Macroeconomic Policy at the Supranational level (the EU and the World). Such coordination cannot be reduced to episodic meetings of various G7, G20... or ECOFIN, which only lead to at best, to simple recommendations without any binding character. It should be deduced that for the violation of any coordination with third countries, the policy of the Central Banks of the countries that issue international currencies is aimed at obliging all other countries (especially Developing Countries and countries with Emerging Markets) to asymmetrically adjust their Monetary Policy in a direction that does not necessarily correspond to the needs of their economies.

Thus, the so-called "peripheral" countries are forced to unilaterally adjust their Monetary Policy by accumulating foreign exchange reserves to absorb these exogenous shocks. So, they must pursue an aggressive export policy based on increasing competitiveness, which affects wages and their domestic demand (Economic Policy), which will also negatively affect the economy of developed countries.

Thus, these asymmetric shocks, subject to the cyclical constraints of dominant economies, are imposed on other countries without any connection to their Exchange Rate regime, without any connection to their own macroeconomic regulation, etc. Hence the necessity for them to depart from liberal policy and establish control over capital in order to better control their Monetary Policy, thus canceling the well-known Trinity of Incompatibility theory. This "tyranny" unilaterally revolves around International Currencies and is well expressed in wording of the US Treasury Secretary John Connally: "The dollar is our currency and your problem".

Internationally, there were also attempts to create regional currencies in Africa, Asia and Latin America, which leave the dollar's status as an international currency in doubt. As for the Euro Area, ideally, in the medium term, attention should be focused on building a Federal State that has the ability not only to unify and consolidate the budget balances of all Member States, but also the deficit and surplus of the Trade Balance. This status, combined with the creation of the European Banking Union, could be a precondition to make the Euro a true international currency, able to compete with the Dollar and face the "irresistible rise" of the RMB in the immediate context of a "Currency War".

The alternative to neoliberalism cannot be a return to protectionism or statism, but only to decentralized forms of democratic regulation that preserve individual freedom and strengthen social solidarity and cooperative strategies at local and global levels. Realizing that the World is indeed in a state of peril, to the conclusion that no more people should be stuck in the path of policies that have proven ineffective and that we must finally get out of the large-scale structural crisis called "secular stagnation".

However, the inevitable competition between major International Currencies, as we already know from previous history, will still lead such a system to the hegemony of only one currency. So the *multi-currency system can be considered only as a transitional stage on the way from the Dollar to another hegemonic currency, which is unlikely to be observed in the next ten years*.

Of course, one cannot ignore the statement that Cryptocurrency may soon become an alternative to traditional currencies. But as the Goldman Sachs experts experts gave a clear answer to the question "can Bitcoin succeed as a form of money?": "Theoretically yes, if it proves capable of facilitating low-cost transactions and/or providing better returns on risk-adjusted investment portfolios. However, in practice the bar looks high. The currencies of most developed market economies are already quite good at providing such monetary services. And if blockchain technology goes mainstream, as seems likely, the bar will look even higher" [23]. Central bankers are even more categorical about this

matter. Their position was very clearly expressed by Cecilia Skingsley of Swedish Riksbank, who stressed that cryptocurrencies don't meet the criteria to be called money [4].

Consequently, Governments and Central Banks continued to treat cryptocurrency with suspicion. That is, Central Banks took quite seriously the need to develop their own virtual money – Central Banks Digital Currency (CBDC). Such currency would ensure direct access of customers (including individuals) to electronic payments among themselves. One by one, Central Banks began to announce their intentions to create their own "e-currencies".

The National Bank of Ukraine also showed some interest for the CBDC and in the summer of 2019 carried out a pilot issue of electronic *hryvnya* . In its report for the same year, the Regulator mentioned the possibility of creating an electronic hryvnia based on the expertise of the Stellar Development Foundation (SDF). In February 2020, the then head of the National Bank of Ukraine Yakov Smoliy stated that the Institution is ready to launch an e-hryvnia, but first they want to to make sure that this issue will not disrupt the trend towards slow price growth in Ukraine. Then there was a lull, and at the end of 2020, the Ministry of Digital Transformation signed a Memorandum with the SDF company regarding the start of joint work on the creation of a digital currency from August 2021 (the prerogative of the development of which, in general, refers to the National Bank, not the Government). Unfortunatly, the War has changed the NBU priorities.

Central Bank Digital Currencies can take on a whole host of new functions. Suffice it to mention that the possibility of their "programming" makes it possible to direct them to specific priority directions and thus solve certain social problems facing the government. The "traceability" of the Central Bank's movement will contribute to the fight against financial crimes. Therefore, the emergence of digital currency promises not only technical convenience, but a significant change in the very paradigm of money circulation. However, it should be taken into account that progress in this direction is not limited to the creation of the CBDCs, since the same Central Banks are already experimenting with the use of "artificial intelligence" [8], which can fundamentally change not only the Monetary Policy of Central Banks, but also the object of this policy – it means Money.

However, this, in fact, would mean a transition to a fundamentally different system of crediting and, accordingly, money issue – from a system of partial reservation to a system of full reservation, or the so-called "narrow banking". This means a fundamental change in the principle of functioning of the banking system as a whole, which forces Central Banks to be quite cautious and even cause some surprise to outside observers. Such a caution, in the end, led to the fact that the leader in the race of central banks to create their own digital currency turned out to be ... the Bahamas. On these islands, in October 2020, the first "*Sand Dollar*" was put into circulation [28]. However, the Central Banks of other countries immediately paid attention to this breakthrough, seeing in it a possible threat not only to traditional commercial banks, but also to the dominance of the Dollar in the World financial arena. Although the special relations of the Bahamas with the United States (including in monetary matters), on the contrary, allow us to make an assumption that the US Fed is behind of the Bahamas CBDC (as the Fed, in fact, cannot afford to limit itself to only analytical studies of the CBDC problem).

Conclusion. Money begins its long historical journey as "Commodity Money", which represents the abstract value because as simple commodity embody a certain concrete value – this is also the starting point for the process of evolution of the form of money presented above. Due to certain features, the common equivalent (Money) is monetary metals – gold and silver. Such money circulated first in the form of a full-fledged coin, then in the form of a damaged one, and then in the form of paper signs that were exchangeable for gold (silver). But it was still Commodity Money at its core. However, at a certain moment, the State realized that it may not provide exchangeable Paper Money for metal, supporting their circulation at the expense of its authority and power (which, after all, are the same thing).

Paper Money from the representative of Gold in circulation turned into an independent Representative of the Value issued by the State – that is, Money that constitutes value due to non-market laws, but state laws. That is, "fiat/charter money".

Fiat Money is replaced by Credit Money – the basis of which is circulation of bills of exchange – that is, ultimately, Market Value. An exchange of this value is carried out on the basis, first of all, of the function of money as a medium of payment (but medium of circulation). Credit Money is initially accrued in the amount of banknotes of commercial banks (i.e. a promissory note to a banker), but is gradually replaced by banknotes of specialized issuing Central Banks (which today are practically all state institutions).

Thus, a kind of synthesis of fiat and credit money is carried out. And the parallel development of the destuffation process initially does not destroy this situation in any way: electronic money in its essence still remains a form of Credit Money. Although the appearance of credit cards begins the process of reformulating the very structure of the representation of value. So from that moment on, *the same* small piece of plastic symbolizes *different* amounts of money. This money now is not represented by symbols in specific banknotes and coins, but distributed electronically among other bank accounts in different proportions. This means a fundamental logical gap, which has noticeably increased with the emergence of "Cryptocurrency". Now it is already fundamentally changing. By its economic essence, Cryptocurrency (in particular, "Bitcoin") is the same "bill of exchange" (*tratta*), which is accompanied by a whole low level of "transfer inscriptions" – "endorsements" (in this case as blockchain). But the basis of Cryptocurrency issuing is not Commodity or Credit transactions (exchange of values), but a certain logical program (a computerized "das Glasperlenspiel"). So, the evolution of the essence also before the appearance of "Smart Money".

As our research has shown, *chrematagenesis* (Appearance of Money) takes place in the form of Revolutionary Evolution. As a result, a revolutionary (relatively instantaneous) change in the type of money takes place: regional (national) Commodity Money is replaced by Fiat) and/or Credit money, which grows (evolves) into international (World) Money and, in the process, inferior to Global post-credit (information, smart, network) Money.

A characteristic feature of these latter (Global Money) is their *dematerialization*. Dematerialization is a deeper and wider process, in which destuffation acts as only one of the elements. Finally it is applied not only to money as a medium of circulation, but also to other Monetary Functions and their very essence.

In modern world, with the development of *ideal* (electronic) money, economic space is separated from its concrete forms and appears in its pure form.

However, "Cryptocurrency" is rather not a Currency, that is, Money, but the basis of new money. Thus, as Gold reserves acted as the driving and frequented channels of Gold Money ("the sound coin"), or bank deposits are the basis of the issuing of Credit Money. "Cryptocurrency" is an alternative not to Gold or Credit Money, but to gold and bank deposits as a means of accumulating and saving money. Mistrust of gold, which loses its position as a reliable asset, and of banks, which turn out to be insufficiently reliable in times of crisis, creates a mechanism for new accumulation and insurance – "virtual repositories". This one, from a theoretical point of view, would be more correct to named not "Cryptocurrency", but "Cryptodeposits" – "Secret Deposits". These deposits may become the basis, the provision of the issuing of new global market-type money.

Thus, the appearance of Cryptocurrency is a logical link in the development of money – both in form (electronic money) and in its essence (virtual money). In their unity, they represent Smart Money: generated by the market as an alternative to Fiat Money.

In a certain sense, "crypto-assets" are *gold of digital economy*. And one can even argue that *crypto-assets are not Global Money, but Global Money is crypto-assets*. That is why Central Banks are aware of the existential threat posed by cryptocurrency issuers and are hatching plans to create their own "cryptocurrencies".

To summarize our research results, one has to stressed that the most likely option for the development of the International Monetary System for the next ten (or maybe more) years is the continuation of the dominance of the US dollar, which may soon function in the form of an e-currency (that is,CBDC of the US Federal Reserve). This option will fundamentally change the relationship between users of the Dollar, turning them all into customers of the Fed. And this will only increase the dependence on the US of all actors of the Global Economy.

At the same time, we must emphasize that such event probably will not end process of the Global Money creation. Considering the above, it can be concluded that different ideological approaches are involved in order to create global money:

– *Conservative*, focused on restoration to one degree or another of the Gold Standard system.

– *Hegemonic*, which is based on absolute dominance in the Global Economy (and, in particular, in financial relations) of one country, whose currency performs the functions of a global one.

– *Cosmopolitical*, which implies the de-sovereignization of international relations and is based on the need to create a "World Government", and in International Monetary Relations – a World Central Bank or other urrency-issuing center, which will ensure the issuance and circulation of global money.

The problem is that all these approaches are focused on the creation of global money (which in itself is a Uthopian idea), while it is about the objective process of the emergence of global their money And our task is to understand the processes that contribute to the modernization and transformation of the existing monetary system, as well as to clarify the forms in which the new Global Money is embodied.

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DOI https://doi.org/10.30525/2592-8813-2024-spec-15

IS CBDC THE REMEDY TO REVOLUTIONIZE COUNTRIES BANKING & FINANCIAL SYSTEMS (WITH PRIMERELY OBECT TO UKRAINE)?

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Abstract. In our days that's hard to find countries in the world with central banks that not undertake energetic actions toward developing own digital currencies (CBDC – Central Bank Digital Currency). Those efforts are caring out in a similar way with advancing traditional centralized money system set under legal tender by a government. In a parallel mode we observe rapid demand growth for use of decentralized digital currencies, represented by different classes financial assets such as coins, tokens, e-money. The question arises: does CBDC transform and replace any traditional monetary system, assuming that new arrangement ought to satisfy practical needs for all contestants of complicate ecosystem structure starting from households/private investors, businesses, government?

Key words: Central Bank Digital Currency, CBDC architecture, decentralized digital currencies, centralized money system, coins, stable coins, tokens, e-money, legal tender, NBU, wholesale CBDCs, Stellar Development Foundation (SDF), distributed ledger technology (DLT), CBDC ecosystem, nonbank financial institution (NBFI), an application programming interface (API).

Introduction. In modern centralized monetary system, the only one party has the legal right to issue currency no matter how to we call that currency: dollar, euro, real, pound, yen, hryvna…and in well-developed and well-functioning banking and financial system of every single country the central bank makes money is absolutely available to the wide-ranging public and at this point we don't argue *in what way* central bank money are backed (reserves, direct obligation etc.); however, the most important is the answer on question: who is liable for central bank money taking into consideration all possible consequences for losing (gaining) money value, and who is responsible before money holders/investors over course of actions such as raising or lowering interest rate, changing discount rates and discount windows, interest for funds rate and reserves requirement, eventually for operation on open market over marketable/nonmarketable securities? The answer on that keystone quest can vary from country to country depending on numerous internal as well as external conditions of economy and banking/financial system. But ultimately the answer supposed to be determined: the only central banks are absolutely liable for stability monetary system. Now, we have to split liability taking into account the fact that central bank is liable for only the issued currency by itself and digital balances held by commercial banks at the central bank; although commercial banks clients that keep money mainly in digital form like bank checking, money market accounts, cd accounts and use available applications to move them from account to account (including online transactions) should be aware about no direct central bank liability for that part of money. So, by issuing CBDC and making them obtainable by public the central banks (not a commercial banks) become liable for "printing" own digital currency.

Literature review and output conditions. Criteria's for accuracy, reliability, authority, objectivity, currency and coverage for evaluating information from given information sources part "references".

Purpose of the Article. To perform qualified research on mentioned subject (CBDC) with respect to a fit object (Ukraine). Having a sense of that purpose, develop comprehensive professional as well as scholar knowledge, based on existed and personal judgements for that matter, provide gathered information, and sources of works.

Methodology statement. Set of allied intellectual enquiry methods for quantitative research, data gathering with use of data extraction, data analysis, case studies; qualitative & factual research - historical analogies, comparative dynamic, ethnographical, cultural absolute and relative business advances.

Results of the study

1. CBDC Timetable, Geography, Purpose

Modern history of central banks digital currency, in the context that researchers use today, count down from 1993 with effort the Bank of Finland to create Avant smart card system [1] or Avant Electronic Purse with aimed "to establish one national purse system" [2]. Project was had been completed in 1997. Since that, on june'23 130 countries all around the world have taking participation in CBDC race (almost 70% of countries in the world today). Most active participation stage has observed from the pandemic covid-19 start, from the end of 2019 almost 90 central banks have joined central banks "future money" bandwagon. Not all central banks today are on the same stage of development own digital currency, the most them are on the research stage 35% from total number, 25% banks are on development stage, 16% on pilot stage, 12% inactive, 8% already launched CNDC, 2 banks canceled project and another 2 banks not officially declared appropriate stage [3] (Fig. 1).

What is the phenomena of enthusiastic participation in "future money" run for vast majority of central banks? Let's look, for instance on corresponding reality in Ukraine, one of the advanced countries in the world for practical use of cryptocurrency and corresponding marketplaces. In term of percentage of population owning crypto, Ukraine possesses 8th spot in the world with 10.3% skipping ahead United Arab Emirates, Vietnam, Saudi Arabia, Singapore, Iran, United States and Philippines, and 21st spot in the world with number of crypto ownership – almost 3.8 million people [5] even though Ukraine ranks 41th in the list of countries by population [6]. Taking into account cryptocurrencies transaction volume, which is measured by "Global Crypto Adoption Index" (Fig. 2), Ukraine's ranked for the 3rd spot with index score 0.694, skipping ahead Vietnam and Philippines (first and second spots respectively); keep in minds that Global Crypto Adoption Index is "made up of five sub-indexes, each of which is based on countries' usage of different types of cryptocurrency services with ranking 146 countries and the closer the country's final score is to 1, the higher the rank" [7].

Truly remarkable results for Ukrainians who are accustomed to use cryptocurrency long time not appear to be random; can be explained by a following reason. First of all, country in 1991 historically acquired monetary & banking system model of the Soviet Union with no well-developed for personal

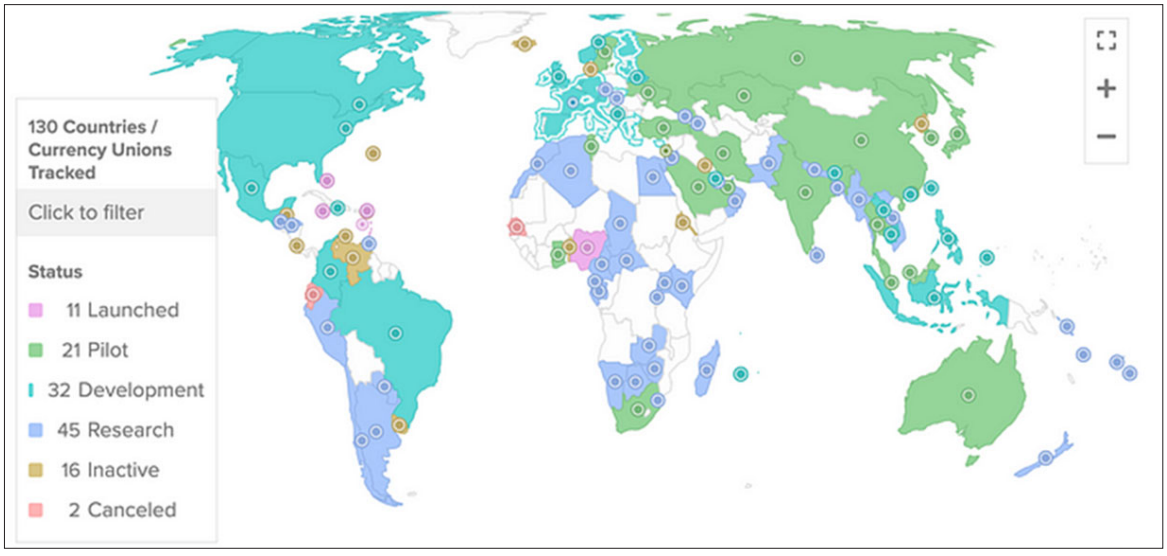

Fig. 1. CBDC by Countries [4]

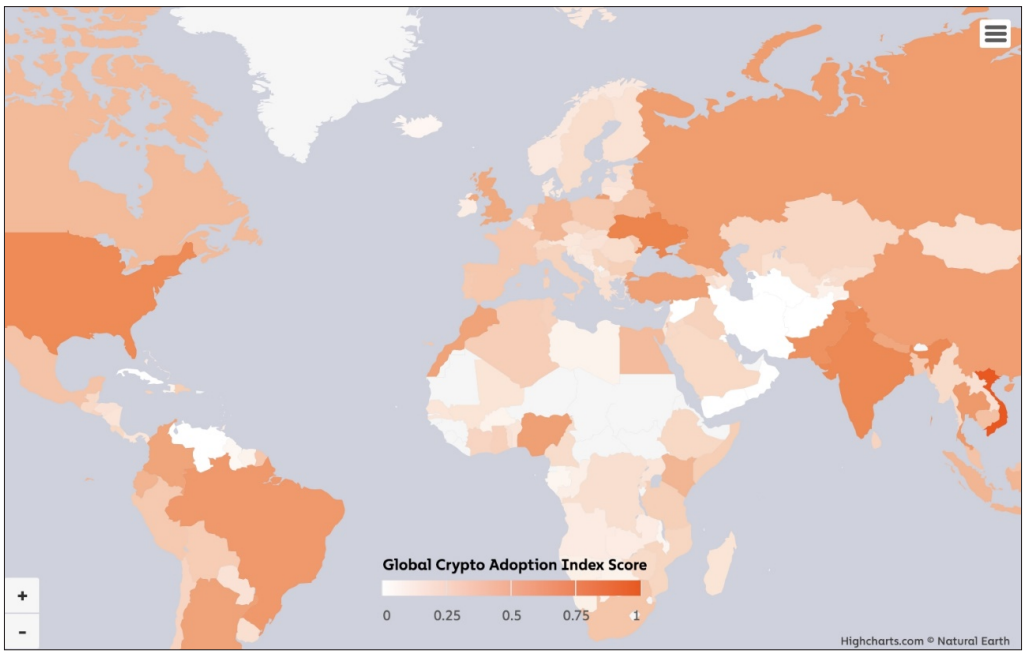

Fig. 2. Global Crypto Adoption Index 2022 [6]

use checking account banking structure, so very big part of money circulation circuit was out of banking system, merely in "cash on hands arrangement", even our days no official data from NBU (National Bank of Ukraine) on question how much uncontrollable money circulate in economy; different estimations give range numbers from $50 up to $120 billion, if any of them are true, it accounts up to 50% of national GDP depending on official data for GDP; moreover, NBU reviles its official opinion, grounded on Ernst & Young and MasterCard study, Ukraine's shadow economy 23.8% in UAH (Ukrainian Hryvna – Ukraine national currency) of total GDP, respectively with 19.7 cash shadow economy (Fig. 3).

Fig. 3. Shadow Economy in Ukraine [8]

The next reason also has historical roots and can be interpreted as mistrust to the monetary and financial government policy because of enormous lost of national currency value; par USD/UAH 1.73 (February – March of 1996) and 36.87 (august 2023) accordingly World Bank data (Fig. 4).

Fig. 4. USD/UAH historical data [9]

Level of Ukrainian currency inflation can be recognized as one of the highest in at least Central and Eastern Europe; data basis: International Monetary Fund, World Bank and OECD Inflation CPI indicator (Table 1).

Table 1

Historical inflation rates in comparison [10]

Year	Ukraine	EU	USA	World
1	2	3	4	5
2022	20.18%	8.83%	8.00%	8.27%
2021	9.36%	2.55%	4.70%	3.48%
2020	2.73%	0.48%	1.23%	1.93%
2019	7.89%	1.63%	1.81%	2.21%
2018	10.95%	1.74%	2.44%	2.44%
2017	14.44%	1.43%	2.13%	2.19%
2016	13.91%	0.18%	1.26%	1.55%
2015	48.70%	-0.06%	0.12%	1.43%
2014	12.07%	0.20%	1.62%	2.35%
2013	-0.24%	1.22%	1.46%	2.62%
2012	0.57%	2.66%	2.07%	3.73%
2011	7.96%	3.29%	3.16%	4.82%
2010	9.37%	1.53%	1.64%	3.35%
2009	15.88%	0.84%	-0.36%	2.94%
2008	25.23%	4.16%	3.84%	8.95%
2007	12.84%	2.51%	2.85%	4.82%

Continuation of the table

1	2	3	4	5
2006	9.05%	2.67%	3.23%	4.28%
2005	13.57%	2.49%	3.39%	4.11%
2004	9.05%	2.29%	2.68%	3.38%
2003	5.18%	2.09%	2.27%	3.03%
2002	0.76%	2.42%	1.59%	2.83%
2001	11.96%	3.37%	2.83%	3.84%
2000	28.20%	3.15%	3.38%	3.49%
1999	22.68%	2.16%	2.19%	3.08%
1998	10.58%	2.42%	1.55%	5.11%
1997	15.94%	3.11%	2.34%	5.57%
1996	80.33%	3.56%	2.93%	6.55%
1995	376.75%	4.43%	2.81%	9.15%
1994	891.19%	4.72%	2.61%	10.32%
1993	4734.91%	4.85%	2.95%	7.51%

Next problem is about keeping currency practically nonconvertible for cross border transactions (up to 2019 some currency liberalization practices) for major part of population; thus, on February 2019 NBU has launched new regime for Foreign Exchange regulation accordingly the Law of Ukraine On Currency and Currency Operations adopted in 2018 [11]; basically major idea is about easing for Ukrainian citizens as well as for Ukrainian businesses transactions on a forex market without obtaining individual licenses that for years have been granted by NBU (on a single transaction bases – separate license), in case if citizen or business does not have so called "currency contract"; before mentioned act had been adopted, citizens or businesses that had "currency contracts", could apply to needed transaction over one legally possible channel – National Currency Exchange (basically functional structure of NBU with some additional authorities). Accordingly, currency liberalization road map looks as following (Fig. 5).

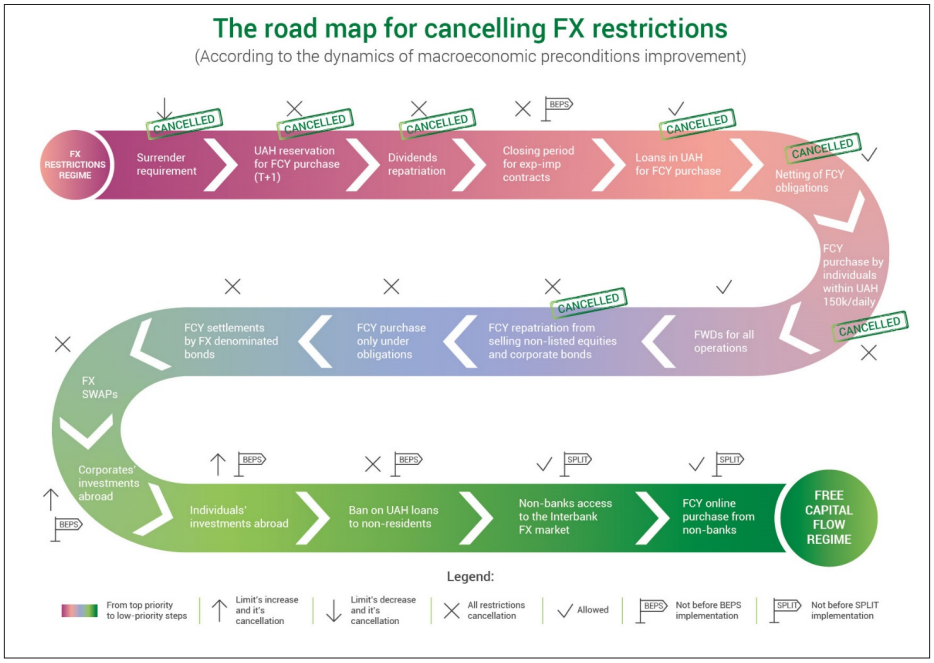

Fig. 5. A new regime of FX regulation road map [12]

Next motive is the corruption system which sophisticatedly transformed over last almost ten years from simple schemes and methods of compensation interested parties in cash (dollar or euro mostly) on the soil of Ukraine toward much more elegantly structured transactions with use of cryptocurrencies and accepting cash on legally opened digital vaults not only in "tax haven" zones. Mostly for that purpose widely has been used range of suitable *stable coins*.

Let's have a closer look on some important parameters of Ukrainian CBDC and officially declared purpose of government digital currency. It has own name "e-hryvnia". Seems, the term "e-hryvnia" is not exactly reflects the essence of what NBU aims on that. Basic idea about non-cash form of national money has formulated and practically grounded in mid-90th, since that diverse approaches and arrangements have been tested and used on different scales and scopes. One of the latest pilot projects started from the use so called "electronic money" or simply "electronic hryvnia" [13]. Three banks have been granted relative license in Ukraine (table 2).

Table 2

Information from the Register of Payment Infrastructure about Issuers of Electronic Pennies [14]

Національний банк України

Інформація з Реєстру платіжної інфраструктури про емітентів електронних грошей

№	Повне найменування емітента електронних грошей	Код за ЄДРПОУ емітента електронних грошей	Тип емітента електронних грошей	Дата внесення в РПІ	Дата виключення з РПІ	Перелік фінансових платіжних послуг
1	АКЦІОНЕРНЕ ТОВАРИСТВО "СЕНС БАНК"	23494714	Банк	10/21/2022		Послуги з випуску електронних грошей та виконання платіжних операцій з ними, у тому числі відкриття та обслуговування електронних гаманців
2	ПУБЛІЧНЕ АКЦІОНЕРНЕ ТОВАРИСТВО АКЦІОНЕРНИЙ БАНК "УКРГАЗБАНК"	23697280	Банк	11/14/2022		Послуги з випуску електронних грошей та виконання платіжних операцій з ними, у тому числі відкриття та обслуговування електронних гаманців
3	ПУБЛІЧНЕ АКЦІОНЕРНЕ ТОВАРИСТВО "МТБ БАНК"	21650966	Банк	12/6/2022		Послуги з випуску електронних грошей та виконання платіжних операцій з ними, у тому числі відкриття та обслуговування електронних гаманців

In term of scalable use of electronic money, was "Sense Bank" (up to 2022 "Alfa Bank"), mostly due to practice of innovative approach by its major clients such as "Nova Poshta", the most active player with electronic money. But we have to recognize the fact that arrangement for electronic money is fairly different for what cryptocurrency require for its procedure; electronic money can be used as a set of interbank regulations between commercial bank and clients reflecting that transaction on correspondent account in the central bank on the daily basis, and reminds the logic of opening dedicated account on which client in the beginning of the operational day put some amount of cash and do not use that cash, instead all daily transactions are performed by bank on interbank non-cash basis, so no needs for any cash or cash equivalent instruments transactions. The algorithm and arrangements for cryptocurrency suggests different technological and software platforms.

The widely used answer on question about major aim for central bank digital currency very simple – "to boost the digital economy" along with issuing "fiat currency as a medium of exchange to exchange goods and services" [15]; stares that central banks are not willing to loose exclusive power to control money emission center preserving dominant consolidated financial and monetary system under own control. Let's turn to e-hryvnia NBU, in addition to what proclaims every central bank, Ukrainian regulator points out a few more purposes such as "promoting and reducing the price of noncash payments, improving transparency of settlements, ensuring confidence in the domestic currency in general, supporting circulation of virtual assets, and cross-border payments" [16].

2. CBDC Types

In order to reach stated goals, central banks use two major CBDC types: Wholesale CBDCs and Retail CBDCs. Basic idea behind Wholesale CBDCs is about large-value financial transfers like cross-border or interbank and securities transactions established from end to end financial market reg-

istered representatives, and not all financial institutions are proxies for use Wholesale CBDCs; moreover, undermanned that central bank wholesale CBDCs can be functionally used for own reserves pooling.

In contrast to Wholesale CBDCs, the dominant idea of Retail CBDCs is about conducting central bank digital money transactions for businesses and people as advanced version of cash, not replacing the monetarist functionality of storing value for end users. Fruitful example, Cambodia's CBDC (Bakong): "the associated Bakong smartphone app can be used at stores and for transferring money. People do not need a bank account to register for Bakong, as long as they have a Cambodian mobile phone number. Users can send funds by scanning QR codes or specifying the recipient's phone number" [17].

Retail for NBU e-hryvna retail architecture has been represented by Accenture in 2019 [18] and conceptually corresponds with a prototype for Two-tier Central Bank Digital Currency (CBDC) from Bank for International Settlements Innovation Hub [20].

NBU e-hryvna is given structure of token with Stellar know-how provider (Stellar Development Foundation (SDF) on distributed ledger technology (DLT), wherein NBU owns and manages the system (ecosystem) as governing structure.

3. CBDC ecosystem

Viability of every single digital asset which undoubtedly communicates to CBDC, is about how that asset fits ecosystem, if ecosystem can be identified and described at all. Attempts to identify own ecosystem suppose not only all shareholders to use CBDC, fears that push those shareholders to create system and support it with regard to benefits and costs that underlie respective *economic* and *financial* models for, in our case CBDC.

In fairness to attentive ecosystem research we ought to point out attempts with bitcoin and other digitalized assets; "modern" stage might be reviewed with Central bank digital currencies. System design and inter-operability by BIS [21] and Project Rosalind is an experiment exploring application programming interfaces (APIs) for retail central bank digital currency (CBDC) (by Bank of England)

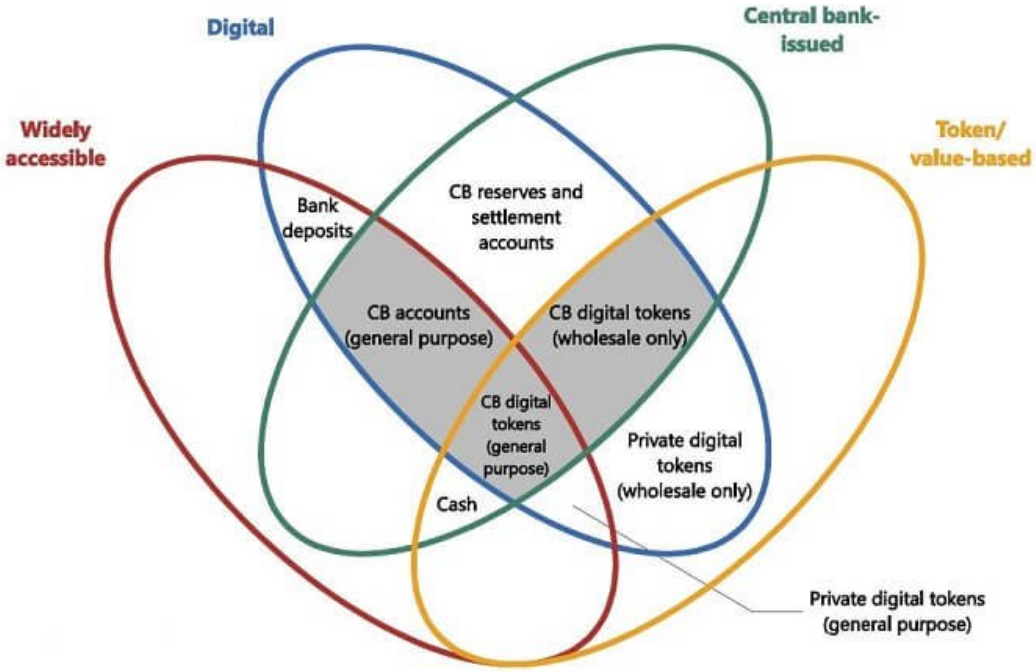

Fig. 6. Digital medium of exchange [19]

[22]. By the way, in our personal assessment, one of the best efforts to describe ecosystem landscape belongs to AWS (Amazon Web Services) with Objectives and architectural considerations 2021 [23].

Furthermore, we should recognize that no single template for central bank CBDC is existed so far due to numerous internal as well as external factors of economic, financial and country banking structure. Thus CBDC E-Hryvnia centralized ecosystem (tested February 2020) looks as follow (Fig. 7).

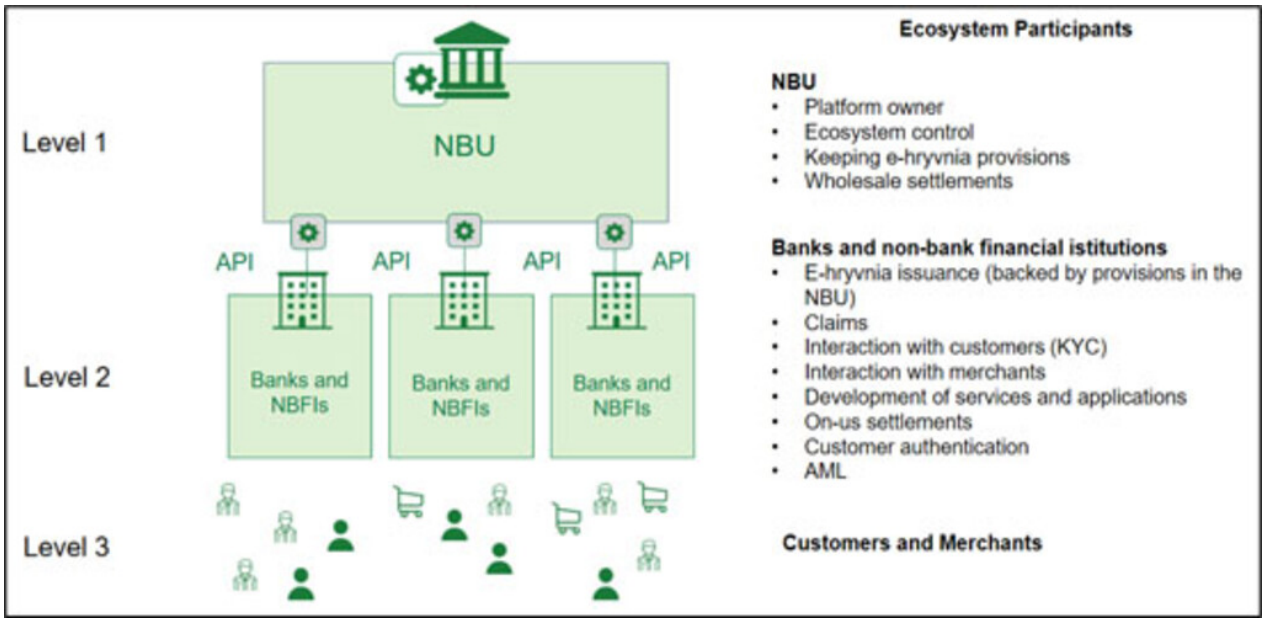

Fig. 7. E-hryvnia centralized ecosystem (tested) [24]

What pricks on alert with indorsed e-hryvna ecosystem? The fundamental point is about missed e-hryvna value proposition and what makes that value unique for its users; basically authorized by regulator ecosystem exemplifies only simple draft potential banks (including NBU) and NBFIs as possible e-hryvna operators. In our opinion that happened due to no clear acknowledgment for focus: set of goals for value proposition in ecosystem delivering for stakeholder's tangible and intangible values; basically understanding focus grounded on deep and comprehensive external and internal analysis. For external analysis supposed to be awareness of ecosystem, business environment, social environment, technological environment, legislative environment; for internal analysis: knowledge of ecosystem capabilities comprised from ecosystem contributors' competencies collectively represented by customers, merchants, vendors, operators and foundation. As a result, no strong **c**ommitments for ecosystem performance with must have attributes such as knowledge, technology, security, accessibility, personability, exchangeability, tradability, raising customer retention ratio (or trust in new currency), enriching brand relationships, higher level of customer satisfaction with merchants as well as with e-hryvna brand.

Strategic focus of NBU CBDC model ought to rely on profound understanding ecosystem up-to-date capabilities in order to make decisions for forthcoming arrangements. Analytical techniques use rational about frameworks that allow identify, clarify, and understand relevant factors setting NBU CBDC future course. Frameworks are irreplaceable to help one to come to grips with ecosystem sophistication. The results for the model is in a prediction of how the ecosystem works and how all ecosystem' stakeholders are involved in that system. In our consideration, NBU CBDC supposed to become a pathway getting from a current state to a future state of monetary system but not additional to fiat currency mean of regulator centralized control, mainly by creating an ecosystem's position

supported by a set of activities. The positioning denotes to a market space for servicing ecosystem stakeholders. The ecosystem activities are internal and include processes and circuits, formed to support loyalty programs' NBU tokens circulation. Thus we can further structure NBU CBDC ecosystem as follow (table 3).

Table 3

NBU token Ecosystem Stakeholders

NBU CBDC Ecosystem Stakeholders				
NBU token Foundation	NBU token Vendor(s)	NBU token Merchant(s)	NBU token Customer(s)	NBU token Market Maker(s) – Marketplace

NBU token ecosystem ought to include win-win decision with collaborative approach that aims how to accommodate all stakeholders in order to maximize NBU CBDC ecosystem long term value. Where to win-win embraces choices on positions in markets and how to win-win includes approaches to ecosystem implementation. By itself ecosystem pursues operational scale on multiple geographic markets, and contribution for every NBU token ecosystem stakeholder precise service features. Also, each geographic market is referred to as unique actions to achieve desired outcomes. Thus we can formulate logic of unique structure for NBU token Ecosystem (Fig. 8).

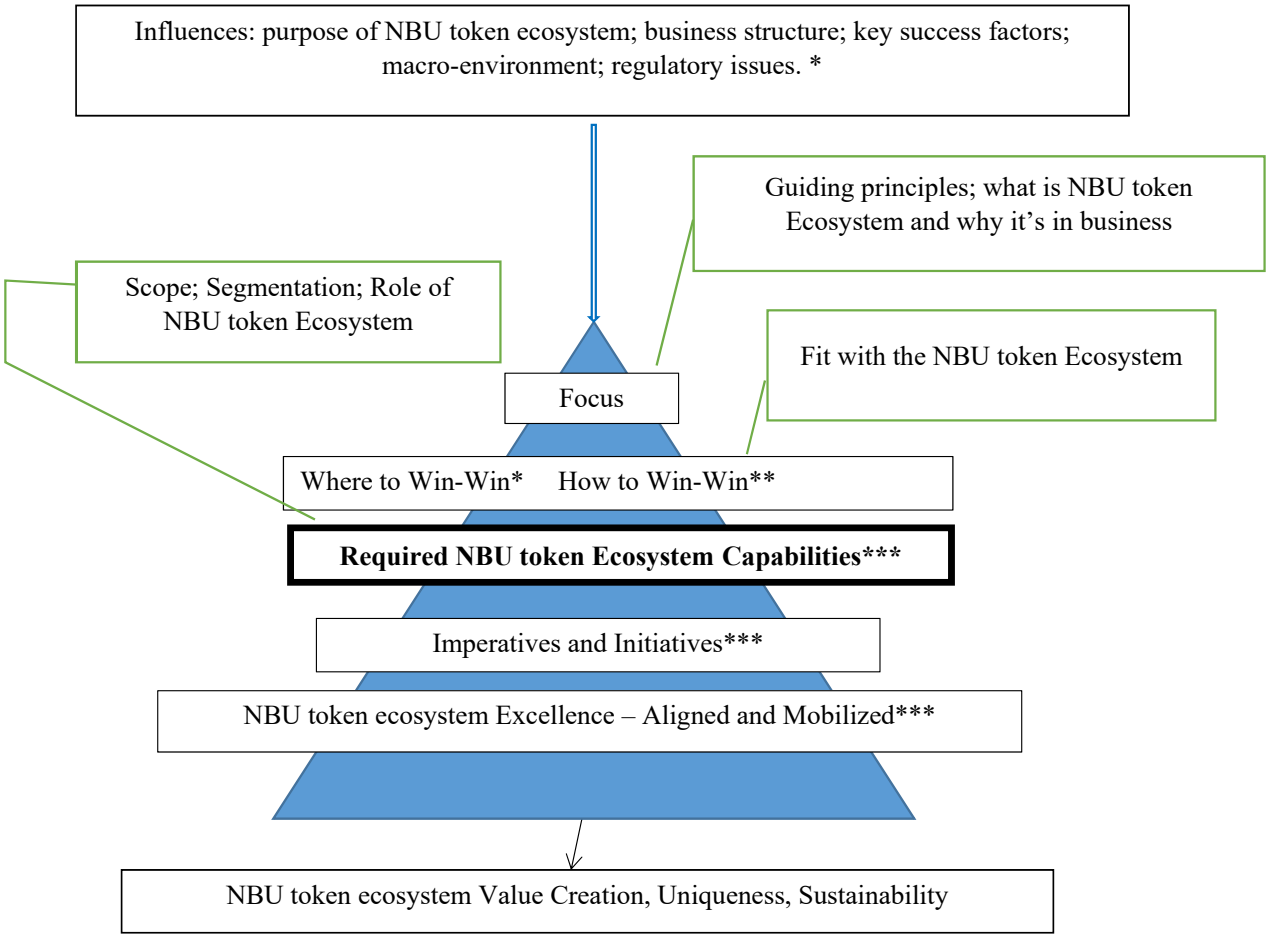

Fig. 8. Unique structure for NBU token Ecosystem

Note: * External Analysis; ** Internal Analysis; *** Implementation*

Identifying a core challenge the NBU token ecosystem. Challenges identification avoids developing a model that is devoid of ecosystem authenticity. NBU token ecosystem challenges come from various places such as external threats, new market opportunities, or failures within an ecosystem such as poor ecosystem' organizational design. The first major challenge is about building decentralized (or centralized as it tested up to date) platform with no central control (or with central control!) the process yet realizes the importance of stakeholders' knowledge, actions, and decisions unencumbered by centralized authority. Second one is about determination ecosystem as viable, feasible, and sustainable. Third one is around diminishing risks by decreasing ecosystem inconsistency. What challenges we ought to expect:

NBU token ecosystem challenges:

- ✓ building decentralized (centralized) trustworthiness platform
- ✓ determination ecosystem as viable, feasible, and sustainable
- ✓ diminishing risks by decreasing ecosystem inconsistency

The positioning NBU token ecosystem must be unique and valuable to all stakeholders and the ecosystem has the capability to protect its positioning. Wherein the value in ecosystem delivered from contributors (stakeholders) of ecosystem and those contributors use correspondent resources for that purpose. Thus value proposition in NBU token ecosystem comes from specific contributors' activities, which in own turn form individual cost base and cost structure. Should be noted, that value proposition appeared as materialized (monetized) in form of streamed revenue (tangible values), and as in no monetized form (intangible values) such as customer satisfaction with merchants as well as with new digital money brand. For now, we can structure NBU token ecosystem as following (table 4) and further more detailed functionality for "What/Who delivers" (table 5).

4. CBDC Marketplace Challenges to Be Prepared

Additional four fundamental queries of NBU digital currency ecosystem as well as business model resolves:

Table 4

NBU token ecosystem formalized Unique Value Proposition structure

<table>
<tr><th>What/Who delivers – ecosystem</th><th>Core Activities in Ecosystem</th><th>Unique Value Proposition</th><th>Customer Relationships</th><th>Customer Segmentation</th></tr>
<tr><td>1) merchant(s)
2) vendor(s)
3) operator(s)
4) foundation</td><td>What differentiates NBU token from other digital currencies?</td><td rowspan="3"></td><td>In what form relationships accomplished?</td><td rowspan="3">What group(s) support generally relationships & channels? (mostly about targeting)</td></tr>
<tr><td></td><td>Core Resources</td><td>Channels</td></tr>
<tr><td>1) merchants
2) vendors
3) operators
4) foundation</td><td>What resources support core activities?</td><td>How revenue generates?</td></tr>
<tr><td colspan="2">Cost Structure</td><td colspan="3">Revenue Structure</td></tr>
</table>

Table 5

Delivering the e-hryvna value proposition

	NBU token Foundation	**NBU token Vendor(s)**	**NBU token Merchant(s)**	**NBU token Customer(s)**
Role	Ecosystem architect, emitent and holder e-hryvna	NBU token technology provider, node holder(s)	Tokens operator(s)	tokens user
Responsibilities	To issue guides, standards, criteria, etc., for different ecosystem players To develop network and client software and issue new releases of it	– to hold NBU token node – to integrate new Merchants NBU token – to support existing Merchants at technology, legal and accounting levels	To reserve NBU token with healthy equivalent in fiat, gold, etc.	Update the wallet regularly
Power	To accredit new Vendors and recall accreditation from those, who do not comply with Vendor acceptance criteria	To accredit new Merchants and recall accreditation from those Merchants, who do not comply with Merchant participation criteria	To agreed nominal price for NBU token.	To exchange one token to another within NBU token ecosystem
	Collects and distributes fees from transactions	Obtains reward for connected customers' activities	Obtains loyal customers and tokens of high liquidity	Pays commission for token transfer and exchange
	Provides access to external assets (fiat, crypto) via NBU token.			
Typical profile	Head office: R&D, Strategy, Technology, Legal, Accounting, Security Center of Competence on Token Loyalty	Software Vendor, who develops software for loyalty management or provides software as a service for Merchants	Retailer, ideally with e-commerce enabled. Consumes software or services from Vendors.	Anybody with e-hryvna wallet, who consumes goods or services from Merchants and who is granted with tokens from a Merchant
Motivation	Motivation is to earn from disruption of new digital currency management market	To earn on NBU token area development	Novel management, technology, better utilization of digital currency, new cheap traffic of customers	Self-determination of e-hryvna use. No cards in the pocket anymore – all vendors in one wallet.

1. How many market segments of the "new currency" ecosystem does serve and who are specific beneficiaries of NBU digital currency ecosystem?
2. How (in what method) relationships between beneficiaries built within NBU digital currency ecosystem?
3. What channel(s) NBU digital currency ecosystem uses to deliver value to beneficiaries in the future?
4. What the most efficient pathway to create CBDC marketplace

The answers on those questions need additional thoughtful research.

Conclusions. Modern centralized banking and financial systems experience rapid changes in external and internal business environment. Central banks more and more are involved in experiments with issuing own digital currencies. So far that early to say if new digital money will serve prosperity all participants of highly integrated financial market, or that is going to fix local or regional monetary problems. Generally, we ought to accept the result for evolution of central banks money and payments brings new prospects, along with new tasks. Powerful spin of non-cash use started with pandemic (civid-19) crisis and as for today the major trend is still there – central banks are exploring how they can continue to deliver their public policy objectives, ensuring liability for preserving monetary value for customers. Not all countries are at the same benchmark on that race to jump in "new money bandwagon". Noticeably enough, countries with less advanced banking and financial systems make more efforts in the way of digitalized version money use, among those countries stays Ukraine with own version CBDC – e-hryvna; conducted research delivers the piece of confidence that NBU effort is going to deliver some advance to economic and financial country prosperity, obviously if respective job will be stranded on very compassionate, prudent and acumen up to day knowledge and practices some of them have been presented in this article.

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DOI https://doi.org/10.30525/2592-8813-2024-spec-16

TOKENIZED ASSETS: DISPELLING THE MYTH OF THEIR ESSENCE FOR THE NEEDS OF REAL ECONOMY

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Abstract. The paper offers a generalized author's view on the new phenomenon of the digital world, backed tokenized assets, as a tool for asset accounting in digital accounting systems. This view is new and currently unpopular in the literature since the main aspect of tokenized asset presentation is related to speculation on financial markets, widespread creation of unbacked assets around objects of human life, graphics, etc.

The aim of the paper is to determine the essence, generic features and technological basis of the use of tokenized assets for their implementation in the digital and platform-based economy.

In accordance with this aim, the author logically presents the material from the general to the specific, analyzing the essential features of 7 main related concepts: distributed ledger, distributed ledger technologies, blockchain technology, tokens and consensus algorithm, tokenized asset, decentralized information platform and blockchain-based ecosystem of services.

The author persists in the opinion that a tokenized asset is a type of virtual asset. It is a tool for certifying sufficient and confirmed legal rights: rights of access to products and services, rights to a certain product or service, rights to receive a fixed income or percentage of profits, management rights, rights to purchase a certain asset at a certain price in the future, etc. The paper offers the original definition of a tokenized asset: tokenized asset is a type of virtual asset that exists in a digital data accounting system based on the distributed ledger technology in the form of a record with an identifier of information derived from the original asset. A tokenized asset can be used as a tool for implementing a method of recording, accounting and managing property rights to assets. Moreover, a tokenized asset can be used as a tool for certifying any rights; providing services; recording events; generating, processing and submitting statistical and analytical information; ensuring logistics, etc. Depending on the purpose of creating a specific tokenized asset and, as a result, certain inherent properties envisaged by the creator, this tokenized asset can be classified as a separate type.

Key words: tokenized assets; virtual assets; distributed ledger token; blockchain; accounting system; information; property rights management; digital accounting.

Introduction. Backed tokenized assets are a relatively new phenomenon in our digital age. They are surrounded by a lot of conceptual confusion, biased and erroneous judgments as well as public speculations and even fakes on a global scale. In accordance with the aim of this paper, we will consider and define the essence, advantages and disadvantages as well as the terms of use of tokenized assets below.

Today, there is a lot of evidence that digital technologies make the traditional world more convenient, simple and accessible: distances can be covered with no time wasted, time is understood differently, objects can be copied and duplicated without additional effort. However, intellectual property rights can be widely violated, and the lines between real and fictional images are becoming blurred as well. Due to highly enhanced capabilities of modern computing equipment (described by Moore's law and confirmed by numerous studies before the rapid development of artificial intelligence and neural networks), the digital world may surpass the physical one in the coming years. This applies at least to the number of identified objects and processes, cause-and-effect relationships, and together it all means that the speed, growth and complexity of digital transformations will increase signifi-

cantly. The blockchain technology plays a fundamental role in these digital transformations, ensuring the data accounting and storage in electronic registers without the possibility of traceless changing, copying or deleting records. As a digital protocol or "book" of trust, distributed ledger technologies (in particular, blockchain) can be considered a technical "bridge" between the physical and digital worlds. Due to the distributed ledger technology properties, trust and transparency in the digital space take on a new meaning. It is possible to keep records of objects or rights to objects of the physical world by assigning them unique identifiers through tokenization, thereby endowing such objects with new properties that can be used in economic relations.

Considering that trust will play a key role for society in our digital age, the important elements to ensure trust in the digital environment are and will be trust in content, trust in identity, trust in ownership, trust in authenticity and trust in truth. Therefore, tokens will be essential in the digital environment since they represent physical assets in the digital world and enhance their functionalities. Tokens will represent the identity and value aspect in a protocol.

Literature review. Understanding the term "tokenized assets" still faces terminological challenges, largely due to its novelty and interdisciplinary nature. There's confusion between "tokenization" in the context of digital assets versus broader financial instruments. The distinction between tokenized assets and cryptocurrencies often blurs, complicating regulatory discussions. Moreover, the term encompasses a wide range of assets, from tangible real estate to intangible intellectual property, leading to debates over the scope and application of tokenization. These terminological issues underscore the need for a standardized lexicon that clearly delineates the varied facets of tokenized assets within the blockchain and financial discourse.

In the current scientific literature [5, 11, 20, 25], there is a consensus that the combination of tokenization and blockchain takes the main advantages of blockchain, such as transparency, traceability, accuracy and immutability. Being registered in blockchain, tokenized assets allow anyone to view all transactions related to their asset. This allows building trust on the market since the history of an asset can be verified. The blockchain immutability ensures that no transaction can be changed, which strengthens trust even further. For example, a seller cannot manipulate the history of an asset to inflate its price or get more money than it is actually worth. In general, tokenization together with blockchain brings significant changes in various areas, providing greater accessibility, efficiency and security. It promotes the democratization of financial services [25], lowers barriers to investment, and creates new opportunities for asset ownership and trading.

For a better understanding of the basics of tokenized assets and the terminological framework of their legal essence, it is necessary to consider approaches to the definition of tokenized assets and tokens underlying this modern type of assets. To do this, one should start with the essence of the blockchain technology itself and a number of related definitions: blockchain technology, virtual asset, token, cryptoasset, identifier [34], as well as the definition of the parties involved in relations arising from the use of distributed ledger virtual assets. These components are special concepts minimally sufficient to formulate the term "tokenized asset".

Thus, blockchain is a technological solution in the digital space that provides a modern way of digital data accounting. In fact, blockchain is an accounting system based on accounting objects in the form of tokens, records in a digital data accounting system based on the distributed ledger technology, which is an identifier of information that can be (but not exclusively) derived from the original asset. Blockchain differs from well-known so-called "classical accounting systems" in the object of its accounting and the technological solution for its implementation. We are talking about a high level of encryption, an open protocol, distributed storage of information, the ability to transfer digital data between accounting addresses without intermediaries, which ensures the reliability and transparency of transactions involving tokens [31]. Indeed, it is difficult to even imagine that an entry in a classic register (for example, in a transaction accounting book or in an Excel file of home bookkeeping), that

is, an entry not based on blockchain, can be a separate object of the transaction. On the contrary, this entry can rather be considered the result of some legal fact that affected the emergence, change or termination of legal relations. As it can be seen, blockchain is essentially one of the types of the distributed ledger technology implementation, which is based on a token as an accounting object that can be accounted for exclusively in decentralized information platforms, or simply in blockchain-based data accounting systems.

The aim of the paper is to determine the essence, generic features and technological basis of the use of tokenized assets for their implementation in the digital and platform-based economy.

Stages of development. Keeping in mind the aim of this paper, the author presents the material using a certain logic – according to a chain of concepts. The first initial concept is the distributed ledger technology. Speaking about it, first of all, it is necessary to consider the relationship between the concepts of "distributed ledger", "distributed ledger technologies", "blockchain technology", "consensus" and "token", which logically ensure the emergence of such a relatively new phenomenon as "tokenized asset" (Fig. 1).

Blockchain-based ecosystem of services	As an environment for market-driven circulation (exchange, purchase, sale) of tokenized assets
↑	
Decentralized information platform	As an infrastructure environment for registration and accounting of all data on tokenized assets, at the core of which is a distributed ledger token accounting system in the form of a hardware and software complex
↑	
Tokenized asset	As the most numerous and widespread type of virtual asset and the main blockchain-based digital service and product
↑	
Tokens, distributed ledger nodes, consensus algorithm	As mandatory tools of the blockchain technology
↑	
Blockchain technology	As the technology selected for well-ordered maintenance of a decentralized digital data register
↑	
Distributed ledger technologies	As basic technologies for the emergence of tokenized assets
↑	
Distributed ledger	As an example of a well-ordered decentralized space arrangement, where the functions of recording and maintaining distributed transactions are performed automatically

Fig. 1. The morphology of the emergence of tokenized assets through the explanation of their basic technological conditions and components

** Source: author's development based on [33, 34, 35].*

We will begin the presentation of basic material with a brief overview of the main essence of the concepts. As you know, a distributed ledger is a set of technical and software devices operating together, but decentralized and independent of each other for recording events with the data of a distributed ledger token using distributed ledger token transactions synchronized by means of a certain consensus algorithm. In other words, a distributed ledger is:

1) from a technological point of view, a decentralized database distributed among several network nodes, each of which receives data from other nodes and stores a full copy of the ledger. At the same

time, such nodes are updated independently of each other. The key feature of the distributed ledger is decentralization, that is, the absence of a single data storage and registration center. In addition, the information in all distributed ledger nodes must be valid and up-to-date, which is possible only by reaching agreement between all nodes of this ledger. Each node compiles and records the ledger updates independently of other nodes. Nodes then algorithmically "vote" on the update to algorithmically "make sure" that the majority of nodes "agree" with the final version. Achieving agreement on one of the ledger copies is called consensus, a process performed automatically using a consensus algorithm. Once consensus is reached, the distributed ledger is updated, and the latest agreed version of the ledger is stored in each node that can be very numerous [35];

2) in terms of the accounting management function, a technological solution in the digital space that provides a modern way of distributed ledger token accounting. In fact, a distributed ledger is an accounting system based on accounting objects in the form of distributed ledger tokens, objects of the distributed ledger token accounting system, which are identifiers of specifically structured information that can be (but not exclusively) derived from the original asset.

Therefore, it is obvious that the technologies using which distributed ledgers are created and maintained in space and time (and these are just a few of the existing distributed ledger technologies – blockchain technology, asynchronous graph technology, etc.) are an unconditional technological basis for creating systems for technologically secure and impartial storage of information at any time. In particular, in blockchain technology, such storage is ensured due to the accounting of distributed ledger tokens, which expand the possibilities of using virtual assets and their integration in various areas. Virtual assets that are created in distributed ledger token accounting systems and are distributed ledger tokens by their technological nature can be an analogy and example of this.

Distributed ledger technologies are multifunctional and multilevel information technologies intended for reliable storage, accounting and transfer of various information [35]. Among the few other distributed ledger technologies, the blockchain technology is the most well-known and widespread type of distributed ledger, where a sequence of blocks (block chain or blockchain) is used to achieve consensus (agreement) between network nodes. Blocks are arranged chronologically, connected to each other and protected by cryptographic methods. According to the logic of its construction, blockchain is a theoretically infinite sequence of blocks with various encoded information that is stored in a database with a very high security level. These blocks can be continuously generated algorithmically and linked to each other in a decentralized manner. This approach to information storage and the principle of interconnection between blockchain elements resemble the principles inherent in nature. For example, DNA chains as well as the atomic and molecular structure demonstrate the similarity and repeatability of their elementary forms of construction – fractals and, accordingly, the very principle of factuality. This indicates a structured and decentralized way of organizing space and, in particular, storing information and its constant repetition in various forms of the universe, from the smallest to the largest.

At its core, the blockchain technology provides information encoding using elliptic curve functions, which ensure its authenticity and protection against duplication, and the algebra of finite fields. The technology builds sequences of blocks that are connected to each other using hash functions, where the end of one block is the beginning of another. Blockchain data is recorded using cryptographic methods similar to those used in banking data transfer systems. Each new block is created based on a "digital mold" (hash) of the previous block, which ensures the connectivity of all blocks in the chain. In order for a block to be added to the chain, its data must be valid, which is ensured by a consensus mechanism that automatically verifies blocks before adding. In this way, a chain of blocks is created, where it is impossible to imperceptibly make changes or delete one of the blocks.

The process of joining new blocks to the chain goes through validation, where the compliance of a block with all blocks in the chain or blocks selected according to certain criteria is checked. Each

new block is completed with an electronic signature created by a private key. For this purpose, the digital signature algorithm with elliptic curves in finite fields is used, which works in a certain range of positive numbers. The authenticity of a digital signature can be easily verified using a public key, but the signing party remains the exclusive owner of the signature.

Such methods as cryptography are used in registers of information requiring protection from possible fraud. Cryptography quickly became widespread in the financial area due to the possibility of reliable verification of each banknote and its protocol (in fact, its exact identification) and gained a clear advantage over fiat (ordinary) money.

Modern and most common areas of the blockchain technology application are:

1) financial area (all cryptocurrencies or cryptoassets as the first known types of virtual assets since 2009);

2) management of traffic flows. For example, logistics algorithms for the movement of various goods or services as well as algorithms for regulating (e.g. traffic lights) traffic flows. The blockchain-based traffic light mode highly optimizes traffic and thus significantly increases the throughput of transport arteries. Traffic flow management of entire districts or even large metropolises is optimized with increased traffic safety and short-term predictability of the availability of the best logistics routes;

3) corporate operational management (for instant notification and processing of requests for the supply of various components and finished goods or services);

4) accounting of emissions from fossil fuels and transition to new "carbon currencies", which is actively used, for example, by Maersk, the largest Danish shipping company [24];

5) instant accounting and tracking of any registered objects and entities during international transportation;

6) trade in agricultural products with confirmation, for example, of their origin, storage or transit route;

7) services of bank lending, verification and check of customer trustworthiness;

8) registration and accounting of circulation of digital currencies issued by central banks;

9) queue management for users of public (state) medical, tourist, cultural institutions, for example, as it is used in the Louvre Museum in Paris;

10) confirmation and protection of copyright on musical works and works of art, etc.

Modern literature [1, 30, 31, 20, 27] mentions many areas and examples where blockchain-based digital solutions are being tested or implemented for optimizing the operation of public and private registers:

- registers of ownership rights to assets, leases and their exchanges;
- registers of contracts and agreements;
- election lists and registers of election campaigns;
- civil and social status registers;
- sociological and public opinion surveys;
- registers of judicial and law enforcement actions;
- databases and registers of private information systems, for example, a class of ERP systems related to the artificial intelligence training;
- court proceedings and commercial arbitration;
- registers of production of goods, products and their consumption;
- private insurance, energy and medical registers of accidents and emergency situations with an indication of the reasons;
- registers of tickets for various types of transport, logistics and postal transfers;
- registers of treatment protocols;
- student academic progress registers;

- registers of conducted research, experiments and engineering solutions;
- population census with grouping according to various characteristics, etc.

It is important that the main in these practical applications is the expected effect of the blockchain technology – to ensure the preservation of data, authorized access to it or its immutability. This is technologically ensured by algorithmic, legal, medical and other types of analysis of data in the blockchain format, which is practically impossible to distort without a trace. This can put an end to various frauds and manipulations with digitized data and information resources wherever they are digitized and entered into a digital data accounting system, that is, into a distributed ledger operated by one selected decentralized information platform every second (see Fig. 1).

Coming back to the blockchain technology and new meaningful derivatives based on it, it is important to note that blockchain is inherently one of the distributed ledger technology implementations, which is based on a distributed ledger token as the only possible (in the blockchain technology) identifier and type of accounting object. This means that the essence and meaning of a token should be determined.

As a term, this is a relatively new concept, but, in fact, this is not at all: its first analogs have been used since the 1960s in the coding of the computing machines of that time, but information circulation systems using a token (or its first analogs) are incomparable today.

In the digital world, the world of virtual assets, a digital token is a form of a unique identifier, a unique digital certificate confirming the obligations of a company (e.g. the issuer) to its holder. The uniqueness of a token is ensured by an exclusive entry in a distributed ledger (blockchain), which is technically almost impossible to forge.

A distributed ledger token is the main tool of a distributed ledger (see Fig. 1). By their technological nature, virtual assets created in distributed ledger token accounting systems are unique distributed ledger tokens [28, 6, 34], which can contain a lot of valuable information about the conditions of their emergence, owners, past circulation, divisibility, etc. In particular, the distributed ledger token data, which is a combination of attributes and properties of the distributed ledger token, includes: a) distributed ledger token hash; b) hashes of transactions; c) number of distributed ledger token accounting units; d) storage addresses of accounting units of this distributed ledger token; e) other attributes and properties that may be specified by the creator of this distributed ledger token [34]. This means that the distributed ledger token attributes can contain all fundamentally important legal information about the basic object of legal relations, which actually exists in the physical world and has its owner. This is crucial for revealing the economic and social potential of tokenized distributed ledger assets, in particular in the context of, for example, a new solution to the global problem of economic inequality.

A token (or, more terminologically, a distributed ledger token [28, 6, 34] can also be compared to shares traded on stock exchanges, but is only used in the field of virtual assets [29]. Accordingly, the main purpose of all tokens is to identify the object to which they are assigned (linked) at the time of their creation: tokens can be applied to any persons or phenomena for their accounting in a digital accounting system (i.e. a decentralized information platform) (see Fig. 1). Therefore, the distributed ledger token as an accounting object of blockchain-based systems can be an independent object of property relations that has its own accounting units in a blockchain-based digital data accounting system [34] (Fig. 2).

It is worth noting that the attributes of a distributed ledger token are necessary, permanent features of it, while the properties of a distributed ledger token are features making up its peculiarity, but at the same time are not mandatory.

In the context of the paper subject, it is important to understand that tokens (i.e. unique digital identifiers in blockchain-based registers) used for a kind of "marking" and designation of rights to actually existing physical or intangible assets (i.e. non-tokenized assets) can add sufficient legal grounds for tokenized assets to be the subject of legal economic and civil relations. This is based on

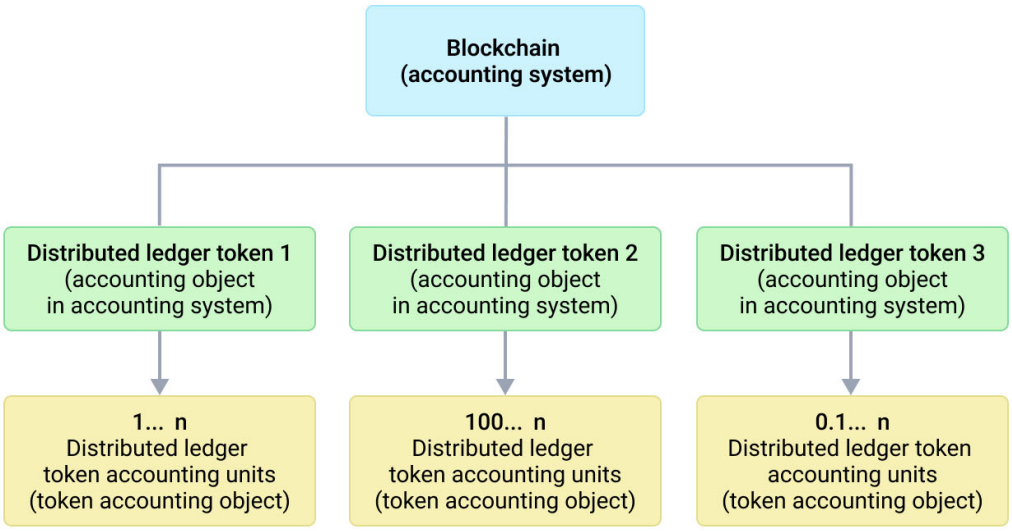

Fig. 2. Blockchain-based digital data object accounting system

** Source: author's development.*

a number of features that together confirm that a token (distributed ledger token) can be an object of legal relations:

1) users of an accounting system (blockchain) can independently create tokens;

2) a token exists as an identifier and has its own accounting units in an accounting system;

3) a user of an accounting system, taking into account their goals, at the time of token creation, can independently indicate the number of accounting units of this token to be issued;

4) between users of an accounting system, not a token itself is transferred, but its accounting units;

5) essence duality of a token: token accounting units can act as a measurement unit for the scope of rights to this token, while the token can be an object of accounting of any property existing outside an accounting system (outside blockchain);

6) users of blockchain as an environment for token circulation keep records collectively, as a result of which it is impossible to change or delete data individually and without a trace [34].

A distributed ledger token accounting system is an information system for registering, storing and exchanging data of distributed ledger tokens, which is based on the distributed ledger technology [34]. Defining a distributed ledger as a distributed ledger token accounting system allows considering a distributed ledger token as an object accounted for in this system.

It should be noted that technically, all objects that are disputed and discussed continuously (we are talking about virtual currencies, virtual assets, digital financial assets, etc.) are essentially tokens. This technological diversity of tokens in the digital world led to the fact that today there are different standpoints of national regulators with regard to the classification of distributed ledger tokens. One of the most well-known approaches is contained in the Guidelines for Enquiries Regarding the Regulatory Framework for Initial Coin Offerings (ICOs) developed by the Swiss Financial Market Supervisory Authority (FINMA). This Swiss regulator took its economic function as the main criterion for the classification of tokens. FINMA distinguishes four types of distributed ledger tokens:

1) payment tokens intended for use either today or in the future as means of payment for goods or services, or as means of transferring money or any value;

2) utility tokens intended for providing digital access to an application or a service using infrastructure based on a distributed ledger;

3) asset tokens that constitute assets, such as debt obligations or claims on the issuer's shares. For example, asset tokens may be promises of a share in a company's future revenues or future capital flows [35, 18];

4) hybrid tokens [34].

The British Cryptoassets Taskforce distinguishes between exchange tokens, security tokens and utility tokens [7]. For its part, the Financial Conduct Authority in the UK, along with these three types, also mentions e-money tokens [17].

Moreover, to understand the types of tokens, it is worth using a generalized explanation of the essence of several types of tokens for original (underlying) assets made by the Blockchain Council [5]:

1) fungible and non-fungible assets. Fungible assets are not unique, so they can be replaced with a similar item, for example, a one-hryvnia coin that cannot be distinguished from any other coin. Examples of fungible assets include gold and money, which in most cases can be easily divided into smaller units. In contrast, non-fungible assets are unique and non-interchangeable assets that cannot be divided into units in the analog world. One of the most common examples of non-fungible assets is the Mona Lisa painting [9]. In addition to fungible and non-fungible assets, we should also consider intangible assets (i.e. assets not represented in a physical object), such as patents and copyrights that can be tokenized as well;

2) security tokens and utility tokens. On the one hand, security tokens provide a holder with the same rights as traditional securities, for example, the right to a share. However, the definition of security tokens depends on the respective jurisdiction: they may differ slightly from country to country. Nevertheless, the classic Howey test is most commonly used internationally to determine whether a token is considered a U.S. security. This criterion was set forth in a decision of the U.S. Supreme Court and defines securities as "an investment of money in an ordinary enterprise with a reasonable expectation of profit derived from the efforts of others". This definition is also used by the main U.S. regulator, the U.S. Securities and Exchange Commission (SEC). In April 2022, the Chairman of this Commission, Gary Gensler, stated that "most cryptotokens are likely to meet the features of investment contracts, which means that they should be registered with the SEC" [19], that is, the head of the main U.S. stock regulator indicated the similarity of cryptotokens to securities.

On the other hand, utility tokens provide a token holder with access to an existing or potential product or service [9]. They are usually limited to a single network (i.e. the issuer) or a closed network associated with the issuer. For example, a tokenized discount card from your favorite store nearby, Disney Dollars, or game tokens in computer games can be considered examples of utility tokens.

It is important to note that objects that are more complex in nature and can also be created based on distributed ledger tokens, i.e. virtual assets, are of significant interest for the use in the economy and, as a result, for the establishment of a correct legal regime.

It is clear that various tools can be created based on the blockchain technology, and not only numerous types of tokens. Some of them have gained enormous popularity nowadays, in particular cryptocurrency or cryptoasset as a type of virtual assets. A review of the specialized literature dedicated to the first world experience of the circulation and regulation of various types of virtual assets [2, 26, 8, 13] assures that over the past decade, the issue of not so much consolidating the legal regime of virtual assets but rather establishing the terminology in this area has been open. Today, there is no consensus on this issue even in developed countries, although there is a trend towards further unification.

The definition of a virtual asset proposed by the FATF [16] is "a digital expression of value that can be digitally traded or transferred as well as used for payment and investment purposes". Taking into account this definition, the following key features of a virtual asset can be distinguished: a) is a digital expression of value; b) can be digitally traded or transferred; c) can be used for payment or investment purposes.

By the way, in the current field-specific regulation of the European Union on cryptoassets (MiCA) [14], a direct terminological link was made between the content of "virtual asset" and "cryptoasset" as understood by the FATF [16]. This logically became a new basis for the Ukrainian legislator, which was embodied in the new version of the Draft Law "On Virtual Assets" dated 2023. For comparison, updated Law of Ukraine "On Virtual Assets" No. 2074-IX dated February 17, 2022, defines a virtual asset as "an intangible benefit that is an object of civil rights, has value and is expressed by a set of electronic data. The existence and circulability of a virtual asset are ensured by the system for maintaining the circulation of virtual assets. A virtual asset can certify property rights, in particular the right to claim other objects of civil rights" [38]. However, the fundamentally new Draft Law of Ukraine "On Virtual Assets" (its working version was proposed for the Advisory Board of the National Securities and Stock Market Commission in June 2023) provided the following definition: "a virtual asset is a digital representation of the value of an object of civil rights or a right that can be transferred and stored electronically using the distributed ledger technology or similar technology". Moreover, no relevant and field-specific current legislative act of the EU and Ukraine contains a definition of a tokenized asset [34].

As you can see, the definition of "virtual asset" covers a wide range of regulated objects, in particular, it can cover not only virtual assets based on the distributed ledger technology but also those based on other (classical) accounting systems (e.g. non-documentary securities, electronic money). This greatly complicates the task of determining the legal regime for this object [34]. The following scientific results will greatly contribute to solving this task:

1) justification of the essence and components of a tokenized asset as one of the main types of a virtual asset. This issue will be outlined below;

2) determination of the subject and object composition of relations regarding the circulation of tokenized assets, which will result in defining the types of tokenized assets;

3) substantiation of the correlation between a real object of the physical world and a virtual object through the procedure of digitizing property and creating a tokenized asset.

As for distinguishing the essence of a tokenized asset, the attention of authoritative international organizations, governments of influential countries, and large banks is focused on tokenized assets having a certain legal link (legal connection) to the original (underlying) asset. The author believes that attention should be directed to virtual assets, the environment for circulation of which is a distributed ledger. The original asset can be any property that a user of a digital data accounting system based on the distributed ledger technology uses to create a distributed ledger virtual asset for conducting transactions involving such property, in particular for economic use. Therefore, given the objective features of a large number of distributed ledger virtual assets known to us, it is enough to consider such a criterion as "derivation from the original asset". This criterion is sufficient for the widest possible coverage of known types of virtual assets, however, taking into account the objective properties of each type of virtual asset and ways of their use in real life.

Accordingly, the following original definition of a tokenized asset is proposed: tokenized asset is a type of virtual asset that exists exclusively in a digital data accounting system based on the distributed ledger technology in the form of a record with an identifier of information derived from the original asset.

This concept is based on the economic category "asset". According to paragraph 2 of Part 1 of Article 1 of the Law of Ukraine "On Prevention and Counteraction to Legalisation (Laundering) of Criminal Proceeds, Terrorist Financing and Financing of Proliferation of Weapons of Mass Destruction" dated December 6, 2019, "assets are funds, including electronic money, other property, property and non-property rights" [39]. Thus, the etymology of the term "tokenized asset" indicates that it is property. Since a tokenized asset is an object of property relations, it exists (i.e. it is registered, accounted for and stored with the entire history of changes in accordance with the divisibility

of tokens) only in a digital data accounting system based on the distributed ledger technology in the form of a record with an identifier of information derived from the original asset.

The adjective "tokenized" indicates the key feature of the term – that a tokenized asset itself is not only property but also an identifier (token) of digital information derived from the original asset (right to ownership and/or use and/or disposal). "Tokenized asset" is a type of virtual asset, a tool for certifying sufficient and confirmed legal rights: rights of access to products and services, rights to a certain product or service, rights to receive a fixed income or percentage of profits, management rights, rights to purchase a certain asset at a certain price in the future, etc. Introducing a new concept of "tokenized asset" at the legislative level will contribute to reaching a new level of digital transformations. The first attempt to do this in Ukraine was made in November 2020, when a team of Ukrainian scientists, on the initiative of the Kharkiv non-governmental organization "Research Center of Economic and Legal Solutions in the Area of Application of Distributed Ledger Technologies" [36], prepared Draft Law "On Tokenized Assets and Crypto-Assets" No. 4328 and registered it in the Verkhovna Rada of Ukraine [37].

Having clarified the essence of a relatively new and modern type of assets existing in the digital environment only, tokenized assets, it should finally be revealed how the connection between a real asset and a tokenized asset is established and tracked.

Only virtual assets that have undergone a particular tokenization procedure (there are already several of them from private providers in the world), that is, digitization with mandatory registration of the object itself and the underlying asset in the distributed ledger, can be useful and, most importantly, legal for achieving socially significant (and not speculative) economic goals, in particular with regard to the market infrastructure development. Accordingly, the procedure for creating such assets is called tokenization.

In fact, tokenization is the transfer of all key features of a physical object to distributed ledgers for storage and accounting, that is, the creation of a unique digital representation of an asset, adding to the underlying (initial) asset "an additional dimension – a protected digital dimension" [15]. In layman's terms, "tokenization of an asset is the creation of an information code providing the asset with key features while revealing some functions that allow a user to interact with the asset digital representation" [15]. For example, based on the popular Ethereum blockchain, this information code is developed in Solidity.

The well-known international expert organization Blockchain Council [5] defines tokenization as "a process of transforming property and rights to certain assets into a digital form" and at the same time indicates that by means of tokenization, it is possible to transform ordinary indivisible assets into the forms of tokens and make them divisible using a unique property of tokens – divisibility into literally any number of token parts, provided that they are registered and accounted for on a blockchain platform. Hence, used tokens represent or prove a share or ownership of assets. Tokenization of backed assets makes it easier and faster for investors to buy and sell shares of assets since they can be divided into smaller units.

From a technical point of view, the process of asset tokenization can be divided into four main stages:

1) selection of a model for submitting assets;
2) asset modeling;
3) technical and security verification of the information code;
4) information code deployment [15]. After security verification, the code can simply be deployed in a blockchain-based ledger, either public or private, depending on the purpose of further use and the conditions for the outside distribution of these tokenized assets.

In 2022-2023, significant efforts were made to address the terminological and regulatory challenges surrounding tokenized assets. Regulatory bodies and industry groups [4, 21, 40] worked towards

standardizing definitions and creating frameworks to govern their use. Collaborative efforts, such as international forums and working groups, aimed at harmonizing regulations across jurisdictions. These endeavors resulted in preliminary guidelines and best practices for tokenization, though comprehensive global standards remain in development. The future likely holds continued collaborative efforts, with a focus on establishing clear, universally accepted definitions and regulatory frameworks to facilitate the broader adoption of tokenized assets. As an output, the gradual disappearance of myths around tokenized assets can be attributed to several key developments:

- increased regulatory clarity: regulatory bodies worldwide have begun issuing guidelines and frameworks for tokenized assets, providing legal legitimacy and reducing uncertainty;
- successful use cases: the growing number of successful implementations in various sectors, such as real estate and art, demonstrates the practical benefits and feasibility of tokenization;
- enhanced security measures: advances in blockchain technology have improved the security of tokenized transactions, addressing concerns over potential fraud and hacking;
- educational efforts: industry stakeholders have invested in educational campaigns to dispel myths and inform the public and investors about the true nature and potential of tokenized assets.

At least, we think, these 4 factors contribute to a more informed and receptive environment for the adoption of tokenized assets. So, the field of tokenized assets saw significant trends across government, analytical, and business organizations. Key developments included regulatory advancements, with several countries beginning to establish clear frameworks for tokenization, enhancing legal certainty for investors and issuers. Innovations in blockchain technology further facilitated the tokenization of a wider range of assets, including real estate and commodities, promoting greater liquidity and market accessibility. Business adoption surged as firms recognized tokenization's potential to streamline operations and unlock new financing avenues [4, 21, 40]. However, discussions on ethical implications and the need for robust cybersecurity measures also gained traction, highlighting the complexity of integrating tokenized assets into mainstream finance.

Moreover, in 2023, an international regulatory environment for tokenized assets underwent significant transformation. Governments across the globe initiated efforts to refine their regulatory frameworks, aiming to create a balance that fosters innovation while ensuring investor protection. This strategic move towards the integration of tokenized assets into formal financial systems marks a crucial step in their legitimization. It demonstrates a global acknowledgment of the potential that blockchain technology holds for revolutionizing asset management and ownership. This regulatory evolution underscores a commitment to nurturing technological advancements in the financial sector, while also establishing robust safeguards against the inherent risks associated with digital assets. The focus on developing clear, comprehensive legal guidelines reflects an understanding of the need to build trust among investors and stakeholders in the burgeoning tokenized asset market.

Finally, there are few of our arguments about debunking the myths that were stated in the title of this article. As we see, the relatively new phenomenon of “tokenized assets” introduces novel dimensions to microeconomics, finance, and GovTech by enabling fractional ownership, enhancing liquidity, and ensuring transparent transactions through blockchain technology. This innovation allows for broader participation in asset markets, potentially stabilizing prices and democratizing investment. In finance, it facilitates real-time, secure transactions, reducing costs and improving efficiency. GovTech benefits from increased transparency and accountability in asset management. Previously, the technology and regulatory frameworks necessary for implementing and recognizing tokenized assets were not sufficiently developed, limiting their conceptualization and integration into mainstream economic and financial systems.

Next, we will try to look at the debunking of myths about tokenized assets through the prism of the GovTech sphere. Why GovTech? Because this is the field that causes further irreversible changes to society, is a kind of “locomotive” of change, although it should be recognized that GovTech is not, and has never been a pioneer of change, a breakthrough innovator and a "fast molecule” in dig-

ital innovation. So, tokenized assets seem to almost revolutionizes microeconomics, finance, and GovTech in 21st century by enabling fractional ownership of assets, which democratizes access to investments previously available only to wealthy individuals or institutional investors. In finance, it streamlines transactions, reduces costs through blockchain efficiency, and enhances liquidity, making it easier to buy and sell assets. For instance, for GovTech, tokenization offers a transparent, secure method for managing public assets and records [12, 3]. Previously, the absence of advanced blockchain technology and regulatory frameworks limited the feasibility and recognition of tokenized assets, rendering the term and its application largely conceptual rather than practical. What does it mean here? As believed for GovTech, tokenized assets represent a transformative approach to managing public assets and records with unparalleled transparency and security. By leveraging blockchain technology, tokenization ensures that each asset or record is uniquely identifiable and traceable, eliminating the risks of duplication or tampering. This enables government entities to streamline their asset management processes, from real estate to intellectual property, enhancing efficiency and reducing bureaucratic overhead. Furthermore, the inherent transparency of blockchain provides a clear audit trail, fostering trust among citizens and improving accountability in public administration. Such advancements could significantly modernize government operations, paving the way for more responsive and citizen-centric services.

So, if it's really true, as the concept of "tokenized assets" becomes more integrated into GovTech and broader financial systems, scholars and policymakers will gain a deeper and more nuanced understanding of its implications. We think this increased familiarity will dispel several myths, such as the inaccessibility and complexity of blockchain technology, and concerns over security and fraud. The clarity brought by widespread implementation will highlight tokenization's benefits in enhancing transparency, security, and efficiency in asset management [10]. Misconceptions about the scalability and regulatory viability of tokenized assets will also be addressed, fostering a more informed and confident approach to leveraging this technology for public good. So, the main beneficiaries of these mentioned GovTech innovations through tokenized assets will include government and regional authorities, citizens, private investors, and software developers. For instance, public-owned agencies gain from increased efficiency and transparency in asset management. Citizens benefit from enhanced access to public records and services, fostering trust in government operations. Investors enjoy improved market accessibility and liquidity, opening up new opportunities in public assets [22]. Lastly, developers find new avenues for creating solutions that integrate public services with blockchain technology, driving innovation and collaboration in the public sector.

In GovTech, tokenized assets could be applied through various mechanisms such as digital registries for land and property, tokenized voting systems to enhance electoral transparency, and blockchain-based identity management for secure citizen data handling. These implementations promise to revolutionize public sector efficiency by ensuring traceability, reducing fraud, and improving service delivery. The irreversible impact on society includes heightened trust in public institutions, democratized access to government services, and a foundation for innovative civic engagement models, fundamentally transforming the relationship between governments and citizens.

In this matter, state-owned centralized platforms and private-owned decentralized blockchain-based platforms really offer new possibilities for GovTech by ensuring enhanced security, transparency, and efficiency in public services [11]. Decentralized platforms, in particular, allow for secure, transparent transactions and records management without a central point of failure, reducing risks of corruption and increasing trust in government operations. The tokenization of assets on these platforms can streamline asset management, facilitate secure voting mechanisms, and improve public record keeping. This represents a significant step forward by harnessing technology to foster more accountable, efficient, and citizen-focused governance.

As we see, digital platforms play a crucial role in debunking myths about the criminality associated with virtual and particularly tokenized assets. By leveraging the inherent transparency and immutability of blockchain technology, these platforms ensure that all transactions involving tokenized assets are recorded in a tamper-proof manner. This not only facilitates the traceability of assets, making it easier to track and report suspicious activities but also enhances the overall security of digital transactions. The use of smart contracts on these platforms further automates compliance with regulatory standards, reducing the risk of fraud and illegal activities. Moreover, blockchain's decentralized nature diminishes centralized points of vulnerability, making it harder for malicious actors to manipulate the system. As regulatory bodies continue to understand and integrate blockchain technology into their frameworks, the perception of tokenized assets is shifting from being seen as a tool for illicit activities to a legitimate and valuable innovation in financial and governmental sectors. This transformation is a significant step forward in the adoption of tokenized assets, promising a future where digital assets are both secure and trusted by the public and authorities alike.

Conclusions

1. All currently known modern virtual assets can be implemented in classic digital accounting systems (digital ecosystems based on a distributed ledger) or only in a distributed ledger. In particular, tokenized assets, which are virtual assets backed by real property, can be easily adapted to the existing civil law system with possible minor legislative amendments. At the same time, the second type of virtual assets, cryptoassets, needs closer attention from legislators, in particular through the adoption of special regulations and consolidation of their legal regime.

2. Two main types of distributed ledger virtual assets can be distinguished: tokenized assets and cryptoassets. In turn, depending on the original asset, based on the International Financial Reporting Standards, tokenized assets can be divided into derivatives of a current or non-current asset. Due to the different nature of their origin from original property (backing), tokenized assets and cryptoassets should be subject to a different legal regime. It also opens up new prospects for further scientific research in economics and law.

3. The purpose of tokenization of backed assets is to create a more accessible and liquid way of investing in these assets. Due to tokenization, assets are divided into small shares represented by digital tokens, allowing investors to buy these shares at a lower cost. Tokens associated with valuable assets are usually backed by real assets, which gives them stability and value. Tokenized assets pave the way for a much easier process of trading and transferring ownership since tokens can be easily transferred and traded on digital platforms.

4. A tokenized asset can be used as a tool for implementing a method of recording, accounting and managing property rights to assets. Moreover, a tokenized asset can be used as a tool for certifying any rights; providing services; recording events; generating, processing and submitting statistical and analytical information; ensuring logistics, etc. Depending on the purpose of creating a specific tokenized asset and, as a result, certain inherent properties envisaged by the creator, this tokenized asset can be classified as a separate type.

5. Parties to relations in the field of application of virtual assets are primarily users of digital data accounting systems based on the distributed ledger technology, who provide or consume services implemented in such systems. It is they who set the demand and supply for virtual assets, initiate transactions and are responsible for the use of distributed ledger virtual assets. Consolidation of the parties' legal status is a prerequisite for a comprehensive approach to the regulation of this area.

6. In 2023, the landscape of tokenized assets witnessed evolution, marked by a convergence of governmental, analytical, and business insights. Governments globally have started to refine regulatory frameworks, aiming to balance innovation with investor protection, highlighting a shift towards legitimizing tokenized assets within formal financial systems. Analytical organizations have focused on assessing the impact of tokenization on market dynamics, emphasizing enhanced liquidity, and the

democratization of investment. Business entities, particularly in the fintech sector, have pioneered the application of tokenized assets, exploring new models for asset management and capital raising. This period also saw an emphasis on sustainability and ethical considerations, with tokenized assets being evaluated for their potential to support green finance initiatives. Despite the enthusiasm, challenges around cybersecurity, market volatility, and the need for international regulatory harmonization were prominently discussed. Overall, 2023 was a year of strategic groundwork and cautious optimism in the realm of tokenized assets, setting a precedent for future innovation and integration into the global financial ecosystem.

7. The strategic implications of tokenized assets for the average person involve broader access to previously inaccessible markets, transforming personal finance management and investment strategies. This democratization of investments could lead to a more financially informed public, with direct participation in markets that were once exclusive to high-net-worth individuals or institutional investors. However, as the concept becomes mainstream, new misconceptions may arise, possibly around the overestimation of technology's ability to eliminate all financial risks or misunderstandings about the nature of digital ownership and its legal implications. Overcoming these challenges will require comprehensive public education efforts and the development of intuitive platforms that simplify the complexities of blockchain and tokenization for everyday users.

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DOI https://doi.org/10.30525/2592-8813-2024-spec-17

PROBLEMS OF MODERN BANKING COMPLIANCE

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Abstract. The enforcement of modern compliance in EU commercial banks has identified several issues. However, the issue of concern is that commercial banks were aggressively charged heavy penalties by supervisory authorities, as well as the removal of board members and revocation of licences from commercial banks. The second issue of concern is reasonable doubts about how the banks enforce the bank secrecy principle. The authors of the article analyse the issues of modern banking compliance and propose ways to solve the issue of compliance requirements by bank customers especially commercial banks while maintaining the principle of non-disclosure of bank secrecy.

The relevance and novelty of the topic are indisputable. Problems of modern compliance affect the interests of all participants in the current financial market.

The purpose of the study is to identify and eliminate problems in the enforcement of effective compliance that suits all parties while maintaining the principle of bank secrecy.

Key words: compliance, banks, bank secrecy.

Introduction. Compliance issues became relevant for the modern banking market already in 2001. Following the terrorist attacks in the United States on 11 September 2001, the entire banking world changed dramatically [1]. Governments of all democratic countries have begun to introduce the comprehensive concept of "Know Your Customer" policies into the banking sector. Requirements from banking sector supervisory authorities have become a pressing issue for banks, their customers and the supervisory authorities alike. Over time, the requirements of the "Know Your Customer" policy were constantly tightened, which ultimately resulted in heavy penalties imposed by supervisory authorities on the players in the banking sector, dismissal of board members, and revocation of licences from commercial banks. Issues of maintaining banking secrecy most urgently appeared on the agenda.

The authors of the study set themselves the goal of identifying problems concerning compliance, finding ways to solve them and elaborating specific proposals to eliminate these problems.

The success was achieved in substantially meeting the objectives set in this study by applying the historical reflection and deduction techniques.

The authors conducted a historical study of the development of banking compliance, identified problem aspects in the enforcement of the "Know Your Customer" policy in the banking sector, summarised all the identified problems accumulated in banking compliance since 2001, and addressed the challenges identified.

Basic theoretical and practical provision. The compliance legislation originated in the United States. The US Foreign Corrupt Practices Act (FCPA), which came into force in 1977 was first elaborated and adopted.

However, the initial starting point for the introduction of banking compliance should be considered the date of 11 September 2001. On this day, America declared war on international terrorism and began to implement legal acts in international banking compliance [1].

It is essential to bear in mind that before 11 September 2001, there was no compliance in the global banking sector. Prior to11 September 2001, banks generally did not inquire about the source of origin of customer assets. They were not particularly interested what type of business activities their customers and beneficiaries of the companies were conducting. At this time, commercial banks fully complied with the principles of banking secrecy. In many credit institutions, it was possible to create an account using a code word without presenting a passport or identifying the customer.

Banking supervisory authorities and Central Banks did not impose compliance requirements on commercial banks. Even though in some countries in the early 2000s laws were passed on "Prevention of money laundering and terrorist financing", the requirements of these laws were not fulfilled in practice [2].

Since 2002, the requirements introduced by supervisory authorities to commercial banks worldwide have been constantly growing. New laws were adopted to prevent the laundering of assets obtained by criminal means. The requirements of old laws were clarified and have become stricter. By 2002, reasonable and justified requirements for customer identification when creating a bank account appeared. There were introduced bans on coded accounts. The first requirements for the implementation of the "Know Your Customer" policy began to appear and be implemented. They were general and there were no instructions for their implementation from the supervisory authorities. Bank customers did not want to disclose any information about their business. Banks, in turn, did not want to disturb their customers, understanding that the market is highly competitive, and customers can take the business to another bank where they are not obliged to answer any "tough" questions. Commercial banks tried to comply with the new requirements of supervisory authorities by searching for information from external sources and the Internet.

At this time, compliance departments were formed in commercial banks. The employees were appointed among customer managers who, in friendly conversations with customers, tried to find out the information necessary to fulfil the requirements of the law and supervisory authorities.

Inspections of banking supervision by central banks in 2003 revealed shortcomings in the policies and procedures of commercial banks. Commercial banks receive instructions to improve the requirements for implementing compliance policies.

By 2005, a new term was introduced in the banking sector: "Beneficiary of assets". Financial institutions are required to know the true owners of all assets held in a commercial bank. At this time, the requirements of the "Know Your Customer" policy continue to become more stringent. Information about the customer from open sources is already considered insufficient. Banks are required to introduce questionnaires in which customers must personally indicate information about the origin of their assets and complete information about their business. Banks, at this time, commenced random requests to present respective agreements on the economic activities of their customers.

Banking supervision audits carried out by central banks by 2006 continued to identify deficiencies in the policies and procedures of commercial banks. Commercial banks are receiving orders to improve the requirements for implementing compliance policies and laws on preventing money laundering and terrorist financing [3].

The concept of responsibility of individual members of the bank's board of directors responsible for compliance in the bank is introduced. At the legislative level, penalties are introduced for non-compliance with compliance regulations.

In 2010, banks commenced the execution of automated compliance systems for all banking operations. The number of employees in the compliance departments of commercial banks exceeds the number of employees in the legal departments of banks. Compliance employees are prohibited from communicating directly with the customer. The very essence of a compliance officer role is changing. These are specially trained professionals who have nothing in common with the customer managers who began working in these departments in 2002. The compliance officers were mainly responsible

for finding information compromising the customer to identify and prevent reputational risks for a commercial bank.

Moreover, banks began to request legal documents from customers for virtually all transactions at that time. This made customers very nervous. The contracts contain secret information, the leakage of which to competitors can lead to large financial losses. However, customers, under threat of account closure, are forced to provide the required information to banks. It is becoming difficult to create accounts in other banks. Banks exchange information about closed accounts with each other. The first cases appear when newly formed companies do not pass compliance checks in commercial banks and thus cannot create operating accounts in any bank at all [4, 5].

Banking supervision audits carried out by central banks by 2011 continue to identify shortcomings in the policies and procedures carried out in commercial banks. Commercial banks are being instructed to improve the requirements for establishing and adopting compliance policies and laws on preventing money laundering and terrorist financing. A large framework of problems appears. A matter of concern is that supervisory authorities annually increase the requirements for commercial banks in compliance, whereas banks do not understand what new requirements will be imposed on them by supervisory authorities [6, 7].

At this time, supervisory authorities, due to improper compliance requirements on the part of commercial banks, began to heavily charge penalties from banks. The first board members of commercial banks responsible for compliance issues appear to be suspended.

By 2015, banks are beginning to purchase automated banking software designed to track all customer transactions and identify compliance risks. From now on, banks require their customers to justify all transactions concluded by customers. The presence of contracts, invoices and other initial information is not considered sufficient. It is necessary to convince the bank that the transaction being concluded was cost-effective for all parties to the transaction and that the transaction price is market price. This had to be confirmed with estimates, quotes and other reliable information.

Banking supervision audits by central banks by 2017 continue to identify shortcomings in the policies and procedures of commercial banks. Commercial banks are being instructed to improve the requirements for implementing compliance policies and laws on preventing money laundering and terrorist financing. At this time, the first precedents appeared for the removal of supervision of all members of the Board of Directors of individual commercial banks. Members of the Bank Councils receive warnings about dismissal from their positions if there is no improvement in the compliance activities of a commercial bank. From the supervisory side, the first signals are appearing regarding the possible revocation of a commercial bank's licence due to improper compliance with the requirements of the "Know Your Customer" policy [8, 9].

By 2023, banks in the European Union and worldwide have introduced general compliance requirements that every participant in the financial sector must comply with [10]. These include the requirements for identifying the customer and the beneficiaries of the assets, a complete understanding of the customer's business and the transactions it enters, and a complete understanding of the economic essence of each operation of a commercial bank and its customers. Bank customers are not allowed to directly communicate with compliance department employees. All communication with the bank occurs through customer managers. Banks are implementing multimillion-dollar software, an artificial intelligence-powered product, to combat the laundering of criminally obtained assets. It is not uncommon that customer assets are not debited according to the customer's payment order until acceptance has been received from the bank compliance officer. Commercial banks request information from each other about customers and their assets and actively share this information. Having a customer undergo compliance procedures in one bank does not mean that there are no questions for the customer from the compliance department of another commercial bank.

At the same time, banking supervision audits continue to identify shortcomings in the policies and procedures of commercial banks. Commercial banks continue to receive instructions to improve the requirements for implementing compliance policies. Commercial banks are facing multimillion-dollar penalties for failing to adequately comply with anti-money laundering laws. Due to insufficient compliance with the requirements of laws on the prevention of money laundering, licences of commercial banks are revoked [11].

The problems of commercial banks experience with compliance highlighted not only the problems of banks with supervisory authorities, but also deep problems with bank customers. If earlier they tried to understand the attitude of banks in the field of "Know Your Customer" policy, then at this stage they refuse to rationally perceive the actions of commercial banks in the field of compliance. The fear of losing an operating account leads to submissive and powerless compliance with the requirements of commercial banks. At the same time, largest customers of commercial banks are faced with a new problem – maintaining trade secrets.

According to the dictionary and laws on bank secrecy: "Banking secrecy is a legally guaranteed principle of banking activity, according to which banks and other credit institutions undertake not to disclose information about their customers and to keep confidential all data on transactions carried out for respondents without exception"[12].

"Industrial espionage is a form of unfair competition in which the illegal receipt, use, disclosure of information constituting a commercial, official or other secret protected by law are carried out to obtain advantages in carrying out business activities, as well as obtaining material benefits" [13].

The main purpose of industrial espionage is to save money and time to enter new markets for the enterprise.

The concept of industrial espionage includes obtaining information about counterparties, obtaining information about the volume of transactions, obtaining information about the price of goods or services, obtaining information about discounts and other privileges, financial information about the success of a business, reporting, information about managers, other information [13].

All the above information, according to the latest compliance requirements, must be submitted by customers to a commercial bank.

Access to this information is available to bank employees, employees of supervisory authorities, employees of all correspondent banks, police officers, tax authorities, prosecutors and many others.

Research findings or data, evaluation of research results. Based on the analysis, the authors of the study identify two unresolved problems:

1) Commercial banks cannot predict and timely fulfil the ever-increasing requirements of supervisory authorities concerning bank compliance monitoring. Supervisory authorities, for their part, are constantly increasing the requirements for compliance in banks. Now, there are no regulatory documents that set out the requirements and criteria for mandatory execution by commercial banks. Banks do not know and cannot independently determine where the boundaries of "sufficient" compliance are. Nevertheless, commercial banks, not wanting to spoil relations with supervisory authorities, prefer to pay heavy penalties, risk their licence and continue to work.

2) The second unresolved problem is related to the fact that with the introduction of modern compliance, commercial banks became the owners of all the commercial information of their customers.

Previously, to commit industrial espionage, it was necessary to infiltrate one's people into a competitor's company. It was not, however, an easy task and obtaining extensive information was difficult. Today, it is enough to enter a conspiratorial alliance with any employee of the compliance department of a commercial bank, where a competitor's company has created an operating account, and all the necessary information will be available. The owners of this information are bank compliance officers, bank management, bank tellers, bank customer managers, bank internal audit staff, bank external audit staff, supervisory staff, police, prosecutors and many others.

Conclusions. Considering the foregoing, the authors of the study draw the following conclusions:

1) The requirements of supervisory authorities for commercial banks are neither systematised nor reflected in regulatory documents. This leads to the fact that commercial banks are unable to understand the scope of necessary measures when implementing compliance policies, which results in constant sanctions imposed by supervisory authorities upon commercial banks.

2) The volume of information requested from customers by commercial banks and its further dissemination inside and outside the bank leads to well-founded fears of possible illegal access to this information by third parties.

To solve these problems, the study authors make the following suggestions and recommendations:

3) The supervisory authorities for commercial banks of the European Union, represented by the European Central Bank, must issue a regulatory document that clearly describes:

– a sufficient level of information requested from customers;

– procedures for processing this information;

– procedures for accessing and storing this information.

4) The supervisory authorities for commercial banks of the European Union, represented by the European Central Bank, must develop and implement unified software for processing information received from customers to identify potential risks and terminate cooperation with unreliable customers. The implementation of compliance procedures in one bank of the European Union must be complete, sufficient and acceptable for other banks in the European Union.

5) At the level of the European Union, it is necessary to develop and implement effective legislative regulations within the area of responsibility of all persons who have access to confidential information stored in commercial banks.

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DOI https://doi.org/10.30525/2592-8813-2024-spec-18

SCENARIO FORECASTING AND TARGETING OF STATE POLICE MEASURES TO PROMOTE SMALL BUSINESS DEVELOPMENT IN LATVIA

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Abstract. In the framework of this work, the authors have developed an algorithm for scenario forecasting of small business development in Latvia, based on the assessment of the probability (using the method of hierarchy analysis) of transformation of available opportunities into strengths for each type of support for small business development (financial and credit, educational, informational, institutional and legislative, property and material-technical, informational, consulting) and taking into account the probability of influence of economic transformation risks on this process. The proposed algorithm allowed to envisage pessimistic, realistic and two types of optimistic scenarios: the first – growth of competitive positions of Latvian small business in the Baltic market, the second – in the European market. For each of the scenarios, the experts have determined the maximum limits that integrally evaluate each of the researched types of small business development support, and the a priori probability of realisation of these scenarios has been calculated. The article defines the foresight objectives aimed at achieving the desired development scenarios, the possibility of their realisation is confirmed by calculating a posteriori probability (according to Bayes theory) for each of these scenarios and identifying positive trends in changes compared to the a priori probability.

Key words: foresight objectives for economic transformation, scenario forecasting of small business development, state support for small business in Latvia.

Introduction. The development of an effective strategy for small business development is a mandatory attribute of Latvia's economic development and should be based on comprehensive diagnostics, including the assessment of the quality of development support mechanisms, the validity of legal acts regulating this process, the assessment of existing weaknesses and strengths of small business activities and the determination of the effectiveness of the country's policy of intervention in small business development [5, 8, 12]. We believe that in the near future the development of small business in Latvia is possible not so much because of the introduction of new legislative norms, but because of the qualitative improvement of state support for small business and ensuring unconditional fulfilment of legislative norms by all economic entities. Due to the conflict between the private interests of small business and the national interests of society, there is a need to build a group of scenarios and form a rational strategy for the development of both the economy as a whole and its most vulnerable part – the small business sector. The improvement of small business performance depends entirely on the quality of their development strategy. A quality small business development strategy contributes to their growth, improved access to financial services and increased stability. If the quality of strategy is not high enough, the goals are unclear, and the timing of implementation is uncertain, performance deteriorates. Strategy can influence development by improving economic policy, reducing uncertainty. We agree with the opinion of a number of experts that in the conditions of uncertainty

of transformation processes of the national economy a clearer understanding of possible scenarios of its development is seen through the use of modern tools of foresight-foresight [17, 18, 21, 22]. Proceeding from this, in our opinion, in the issue of ensuring the development of small business, the application of foresight technologies is promising in the construction of development strategies.

Basic theoretical and practical provision. In the development of economic, scientific, technological and innovation strategy of the state since the early 1990s, special attention has been paid to the practice of determining development priorities using the Foresight method. This method was widely used by the governments of the USA, Great Britain, Germany, Japan and Australia. By the end of the 2000s, more than 30 countries had implemented this approach. Currently, the Foresight method is actively used not only in the developed countries of Western Europe, the USA and Japan, but also in a number of developing countries and countries with economies in transition, including new EU members such as Hungary, the Czech Republic and Poland. In the UK, Germany, Hungary, France and Spain, support for Foresight comes from the government, while in Sweden, Italy and Portugal the initiative comes from the business community. The most widespread use of this method is in the UK, and many countries are now utilising this country's experience in this area.

Currently, there is no single model of Foresight, each country "adapts" this method to its own conditions and goals. Since Foresight is more about process than outcome, there are no clear indicators of its effectiveness. Each country adapts this approach to its own context, taking into account national interests, using different techniques to predict the future. (Delphi method, scenarios, brainstorming, SWOT – analysis, alternative options and scenarios of the future, international comparisons, etc.). "Foresight" is a process of nationwide selection of new directions, during which a consensus of opinions of various subjects of the national innovation system is achieved, and links between its elements are established. Therefore, this method is most widespread in countries with a developed culture of cooperation and co-operation within the national innovation system, the development of which is supported by the government. Foresight" refers to the process of systematic identification of new strategic scientific directions and technological achievements, which in the long term can have a serious impact on the economic and social development of the country [21, 22].

In economics, system foresight is an important tool for analysing and shaping development prospects. The main methods of system foresight applied in the economic context are as follows [17]:

– Technological analysis and forecasting: The study of current and potential technological trends and their impact on production, services and markets. This includes analysing innovations and assessing their impact on economic dynamics.

– Market Trend Analysis: The study of market conditions, the competitive environment, consumer supply and demand, and changes in consumer behaviour.

– Econometric modelling: The use of statistical techniques to analyse economic data and develop models that predict future economic developments.

– Scenario forecasting: Creating different scenarios of developments based on changes in economic factors such as GDP, inflation, unemployment, and others.

– SWOT analysis of the economic system: Assessing the strengths, weaknesses, opportunities and threats facing the economy, which helps to identify strategic priorities.

– Socio-economic trend analysis: Examination of demographic changes, social trends and their impact on economic activity.

– Institutional Factors Study: Assessing the impact of legal, political and social institutions on economic stability and development.

– Business Scenarios: Developing business and market scenarios to help companies and investors better understand possible future trends.

– Economic models of structural change: Exploring possible changes in the structure of the economy, such as the development of new industries, changes in trade flows, etc.

– Forecasting using econometrics: Applying mathematical models and statistical methods to forecast economic performance.

These methods allow economic analysts, governments, entrepreneurs and other market participants to make informed decisions and adapt to the changing conditions of the economic environment. One of the main conditions for the successful use of this method is the readiness of society (administrative apparatus, heads of companies, individual specialists, and the public) to jointly assess the long-term prospects of the country's development, abstracting from short-term conjunctural moments.

The implementation of measures and methods of the system foresight of ensuring the development of small business allows to determine the prospects of ensuring the development, to determine the possible horizons of its future and to develop practical measures to achieve the selected strategic benchmarks. The main requirements to the system foresight of small business development are:

– taking into account the specifics of small business activity in Latvia (subordination to the relevant legal and regulatory acts, taking into account the criteria for classifying business entities to the category of small working enterprises, etc.);

– adaptation to the national long-term development strategy of Latvia Latvija2030 [16] and to the support programmes implemented for small businesses [7, 10];

– taking into account the public-private dialogue in balancing interests regarding the vision of future development;

– ensuring access to the necessary amount of financing for small businesses from private, public and intergovernmental funds;

– strengthening interaction between small businesses and research institutions and organisations.

Scenario forecasting in economics, as one of the methods of system foresight, is a methodology aimed at creating various possible scenarios for the development of economic events [19]. This approach helps to assess the likely effects of various factors and events on the economy in the future. Instead of a single-valued forecast, scenario forecasting provides a set of alternative scenarios that take into account different variables, conditions and impacts.

The main features of scenario forecasting include:

– Multiple scenarios: unlike traditional forecasting, the scenario approach involves creating several possible scenarios of developments. These scenarios can cover different levels of economic growth, inflation, policy changes and other factors [2]

– Consideration of various factors: Scenario forecasting takes into account the diverse impacts of various factors such as policies, technological changes, geopolitical developments, changes in market conditions and others that may affect the economy [3].

– Sensitivity analysis: Scenario forecasting analyses how changes in various variables can affect the results of the study. This helps in assessing the degree of resilience or sensitivity of the economic system to various influences [4].

– Strategic planning: due to the ability to consider different scenarios, scenario forecasting is used for strategic planning and decision making. Economic agents, such as businesses or public institutions, can use this approach to develop more adaptive strategies given the uncertainty in the environment.

Without doubt, scenario forecasting is not able to provide absolutely accurate predictions, but it provides an opportunity to better prepare for various potential scenarios of the future and take measures to reduce possible risks.

Risk management is an integral component of foresight justification of small business development activities, which allows to minimise the adverse effects of the action of uncertainty of transformational processes of the national economy on the activities of small businesses. In order to identify possible dangers, it is necessary to take into account in advance all aspects and conditions of small business development [20, 24, 25]. The correct definition of possible risks of transformation of the

national economy and the weight of their influence, along with the circumstances that hinder the development of small business, is crucial.

There are a number of characteristics inherent to the risk, which causes the presence of different views on the semantics of this concept, but their study allows us to highlight the key criteria for identifying the concept [1, 9, 14]:

– risk as a consequence of uncertainty of the result;
– risk as a probability of losses of the enterprise;
– risk as a danger or threat to the enterprise's activity;
– risk as damage received by the enterprise;
– risk as a probability of error and erroneous actions;
– risk as unreliability, etc.

Taking into account the importance of the processes of type of collateral in the development of small business, we propose a typology of risks of transformation of the national economy in accordance with the type of collateral on the basis of the FELPIC model, considered earlier in the studies of the author R. Indrika (2019):

– risks of financial and credit provision (F);
– risks of educational provision (E);
– risks of institutional provision, including risks of normative and legal provision; (L)
– risks of property and logistical support (P);
– information support risks (I);
– risks of consulting support (C);

The main risks of the national economy transformation affecting the development of small business are those that affect the processes of type support and as the weightiest and significant (Table 1).

Risk management is an integral part of the development of foresight activities and, according to scholars, consists of:

– a cyclical process that should be repeated at regular intervals, and this applies both to the entire activity of the enterprise and to individual business processes [24].

– a set of methods, techniques and measures that allow to a certain extent to predict the occurrence of risk events and take measures to reduce them [9];

Table 1

Group of risks	**Abbreviation**	**List of the most significant hazards within the group**
1	**2**	**3**
Financial and credit support risks (F)	Rf_1	Liquidity risk
	Rf_2	Credit risk and interest rate risk
	Rf_3	Risk of difficulty in accessing necessary financial resources
	Rf_4	Risk of insufficient quality of financial resources management
	Rf_5	Changes in exchange rates when buying and selling goods
	Rf_6	Risk that partners or customers fail to fulfil their financial obligations
	Rf_7	Risk of increase in accounts receivable and difficulties in its management
	Rf_8	Inability to attract financial resources due to a decrease in the level of creditworthiness
	Rf_9	Risk of financial losses due to inflationary processes
	Rf_{10}	Lack / reduction of investment capital
	Rf_{11}	Risk of bankruptcy
	Rf_{12}	Risk of financial losses due to non-payback of implemented new technologies

Continuation of the table 1

1	2	3
Educational support risks; (E)	Re_1	Spending on education can reduce available financial resources for other business needs
	Re_2	A business may not get the expected return on investment in employee education if their new skills are not applied effectively in the workplace.
	Re_3	If the effectiveness and quality of education programmes are inadequate, employees may be left inadequately trained to perform their duties
	Re_4	Investment in employee training may become ineffective if trained employees leave for other jobs
	Re_5	Poor quality of training programmes or insufficient attention to the educational needs of employees can negatively impact a company's reputation and tax bill.
	Re_6	Training programmes can lead to difficulties in planning and coordinating work, especially if the enterprise has limited resources.
Risks of institutional support, including risks of regulatory and legal support; (L)	Rl_1	Changing economic and tax policies may cause uncertainty and make long-term planning difficult.
	Rl_2	Misinterpretation or violation of regulations could result in legal consequences and lawsuits
	Rl_3	Failure to comply with standards and legal requirements may result in tax penalties and loss of reputation
	Rl_4	New restrictions on international trade may affect a company's export and import operations
	Rl_5	Stringent environmental sustainability requirements may impose additional compliance costs
	Rl_6	Changes in the political environment may affect the business and investment climate
Risks of property or material and technical support; (P)	Rp_1	Risk of unforeseen power outages that may affect equipment performance
	Rp_2	Risk of manufacturing errors resulting in defective products or poor-quality services
	Rp_3	Risk of rapid obsolescence of the equipment in use, which requires frequent modernisation or replacement
	Rp_4	Risk of loss or damage to buildings, equipment, raw materials and supplies as a result of natural disasters, fire or theft.
	Rp_5	Risk of insufficient attention to equipment maintenance, which may cause early equipment failure.
	Rp_6	Risk of environmental compliance issues
	Rp_7	Risk of unforeseen reduction in the supply of raw materials or components due to problems with suppliers
Risks of information support; (I)	Ri_1	Risk of misuse of information about the company in case of data collection and transfer to third parties.
	Ri_2	Risk of creating unequal conditions of competition in favour of certain enterprises in the presence of state interference.
	Ri_3	Risk of introducing state regulations on data nationalisation, which may affect the localisation and security of information
	Ri_4	Growth of information asymmetry, censorship and misinformation
	Ri_5	Risk of loss and unauthorised alteration of information
	Ri_6	Disruptions in the operation of information systems

Continuation of the table 1

1	2	3
Risks of consulting support; (C)	Rc_1	Risk of ineffective consultations due to inadequate qualifications of government consultants
	Rc_2	Risk of conflicts of interest if consultants have links with certain groups or organisations
	Rc_3	Risk that changes in public policy strategy may lead to a change in the direction of advisory support.
	Rc_4	Risk that the advice provided by government consultants may be too general or not applicable to a particular sector
	Rc_5	Risk of confidential information being leaked as a result of government advice
	Rc_6	Risk of receiving advice that is not in line with the enterprise's development strategy

– interactive process with clearly defined stages, through which managers can clearly present the risks faced by the organisation [6];

– prediction of risks, determination of their possible sizes and consequences, development and implementation of measures to prevent or minimise the damage associated with risks [20];

– system of targeted measures aimed at identifying and assessing the degree of the totality of risks affecting the activities of the enterprise in order to develop mechanisms to counteract their possible negative impact [14].

A characteristic of small businesses regarding risk management is that, unlike large enterprises, risks are often ignored or identified more slowly.

The risk management process involves a number of measures, such as:

– Identifying and assessing risk; planning actions to mitigate risk;

– controlling the risk; implementing preventive measures of risk occurrence;

– developing proposals for the future.

We believe that in the implementation of system foresight it is worthwhile to dwell on the first stage of this process, since the accuracy of its results is the cornerstone of any future decision at the small business level. Identifying the risks of transforming the national economy is a major decision for small businesses because of the variety of processes and reduced resources. In this regard, tools to establish such predicted risks such as: brainstorming, risk list, structured interviews, questionnaires, cause-effect analyses, previous experience of managers, etc. are quite available and effective. Some risk factors of national economic transformation can be directly observed and measured by macroeconomic variables, e.g. GDP. Other risk factors cannot be directly observed because they contain too many variables. For a proper description of risk, two variables should be identified: key risk factors and key risk indicators [13]. The first provides information on the level of risk impact before any mitigation measures, and the second defines the risk profile of the business sector. Performing a thorough analysis of the aforementioned risks of national economic transformation from different angles concerning all small business activities can be a cumbersome task, but the benefits are clear: by focusing on prevention and mitigation strategies and incorporating them into the business processes themselves, some of the risks described in Table 1 can be significantly reduced. When making a decision, the manager is faced with two alternatives – a risky one and a robust one that ensures that the results achieved are maintained [11]. We believe that in the framework of scenario planning foresight to the reliable development scenarios, taking into account the existing level of influence of the risks of transformation of the national economy, belongs the realistic scenario that provides for the preservation of profitability and positive trends in key performance indicators (Figure 1).

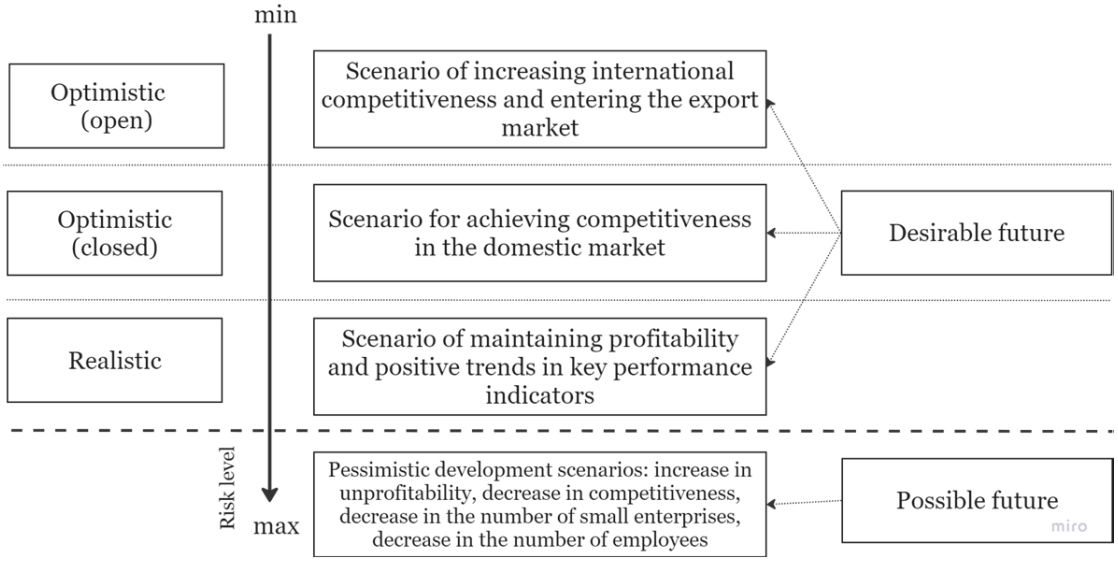

Fig. 1. Correlation of possible scenarios of entrepreneurship development under the influence of risks of transfromation of the national economy.
Prepared by authors

According to the reasonable assertion of the relationship between the foresight scenario and the risks of securing small business development, the risk assessment function will look as follows:

$$f_r \left\{ r_F; r_E; r_L; r_P; r_I; r_C \right\}, \tag{1}$$

where fr-function of the influence of the risk of transformation of the national economy on the provision of small business development;
rF – risk of financial and credit support;
rE – risk of educational support;
rL – risk of institutional and legislative support.
rP – risk of property or material and technical support;
rI – risk of information support;
rC – risk of consulting support;

At the same time, taking into account the scenario approach to the development of foresight activities determines the need to determine the maximum limits of the desired future risk acceptable for scenario building, which will be described by the following formula:

$$P_{for} \epsilon \begin{Bmatrix} scenario1 & if & f_r \{r_F; & r_E; & r_L; & r_P; & r_I; & r_c\} & < x_1 \\ scenario2 & if & f_r \{r_F; & r_E; & r_L; & r_P; & r_I; & r_c\} & < x_2 \\ scenarioN & if & f_r \{r_F; & r_E; & r_L; & r_P; & r_I; & r_c\} & < x_N \end{Bmatrix} \tag{2}$$

where Pfor – probability of realisation of foresight activities under scenarios 1, 2, 3 (scenario1, scenario2, scenario3), which is determined by the value of the expected value of the random variable x1, x2, ..., xN.

Research findings or data, evaluation of research results. The level of risk of ensuring the development of small business was assessed by the expert method. Representatives of small businesses, auditors, accountants were interviewed. 94 people took part in the survey. The results of the survey were unified in accordance with the empirical scale of acceptable risk level and standardised in accordance with the average expected value of a random variable, which allowed to substantiate the following results:

– the achievement of scenario 1 (ensuring profitable activity of small business) is possible under the condition of minimising risks and ensuring the possibility of their occurrence not more than 0.48;

– implementation of scenario 2 (optimistic closed) is achieved under the condition of minimising risks and ensuring the possibility of their occurrence no more than 0.31;

– implementation of scenario 3 (optimistic open) is possible under the condition of minimising risks and ensuring the possibility of their occurrence within 0.21.

The proposed scientific and methodological approach to assessing the risks of national economic development involves the use of the indicator of the probability of occurrence of the desired future development of small business and allows using the empirical scale of acceptable risk level to assess the probability of realisation of the desired foresight scenario of small business development. The results show that even with a high level of risk (0.49) small businesses can ensure their development according to a realistic scenario, which allows for the profitability of small businesses. To achieve more attractive strategic goals (market expansion, entry into the international market, etc.), the probability of occurrence of the classified risks of transformation of the national economy should be small. In general, it can be noted that the existing risks with a correct policy of their minimisation and a reasonable process of targeting development goals will not be an obstacle to ensure the development of small business. Documenting the procedure for achieving the strategic priorities of ensuring the development of small business involves targeting foresight measures of small business development.

The introduction of foresight measures is aimed at turning the existing opportunities for small business development into their strengths, taking into account the appropriate level of risk of uncertainty in economic processes. Given the specifics of system foresight, which consists in achieving the desired future, the assessment of the effectiveness of foresight measures is to determine the probability of small business development, which in our opinion can be most accurately determined using the formula of full probability. Let us assume that A1, A2,..., AN is a complete group of incompatible mutually exclusive scenarios (hypotheses about alternative foresight scenarios). If event A, expressing the development of small entrepreneurship, can occur only when one of the scenarios (B1, B2, B3), which form a complete group of incompatible events that can occur when opportunities are realised at an appropriate level of acceptable risk, then the probability of event A (development of small entrepreneurship) is calculated using the formula:

$$P(A) = P(B1)P(A|B1) + P(B2)P(A|B2) +...+ P(BN)P(A|BN) \quad (3)$$

Given a particular type of support for a small business, the probability of its development will be described by the system:

$$P(development)\epsilon \begin{Bmatrix} PpF = & P_{probF} * P_{riskF} \\ PpE = & P_{probE} * P_{riskE} \\ PpL = & P_{probL} * P_{riskL} \\ PpP = & P_{probP} * P_{riskP} \\ PpI = & P_{probI} * P_{riskI} \\ PpC = & P_{probC} * P_{riskC} \end{Bmatrix} \quad (4)$$

where Pdevelopment is the probability of development in the implementation of the opportunities of the relevant species security at an acceptable level of uncertainty risk;

Pprob is the probability of transforming the identified opportunities for species security into the strengths of the SE. Accordingly:

$$\text{Pfor opREAL} = \text{PprobF x PriskF} + \text{PprobE x PriskE} + \text{PprobL x PriskL} + \text{PprobP x PriskP} + \\ + \text{PprobI x PriskI} + \text{PprobC x PriskC}$$

– the possible probability that a realistic development scenario has been realised;

$$Pfor\ opOPTC = PprobF \times PriskF + PprobE \times PriskE + PprobL \times PriskL + PprobP \times PriskP + PprobI \times PriskI + PprobC \times PriskC$$

– possible probability that the optimistic closed development scenario has been realised;

$$Pfor\ opOPTO = PprobF \times PriskF + PprobE \times PriskE + PprobL \times PriskL + PprobP \times PriskP + PprobI \times PriskI + PprobC \times PriskC$$

– the possible probability that an optimistic open development scenario has been realised;

The probability of development under the classified scenarios according to the possibilities of types of state support in accordance with the full probability formulae is as follows:

$$Pfor\ opREAL = 0{,}893;\ Pfor\ opOPTC = 0{,}573;\ Pfor\ opOPTO = 0{,}431;$$

It is clear that the probability of small business development according to the realistic scenario is higher because it requires less time and resources and is possible in the short term. At the same time, the implementation of the optimistic scenario requires a longer time interval and can be implemented if certain conditions are met (favourable business environment, obtaining the expected effect of small business development measures, etc.).

In fact, the probability of the system foresight of SME development will have the following form:

$$P\ for \in \{ \underset{\text{shortterm period}}{Pfor_{opREAL}} \dashrightarrow \underset{\text{longterm period}}{Pfor_{opOPTC}} \dashrightarrow Pfor_{opOPTO} \}. \quad (5)$$

If we assume that event A has occurred (development of small business through the implementation of foresight activities), then the probability of hypotheses (alternative scenarios) is re-evaluated by calculating the posterior probability in accordance with the Bayes T. formula, which in its classical form is as follows:

$$\mathbf{P\ (AIB)\ = \frac{P(BIA)P(A)}{P(B)}} \quad (6)$$

where P(B) – a priori probability of the existence of hypothesis B, P (A|B) – conditional probability of event A with the existence of hypothesis B, P(B|A) – posterior probability of the realisation of hypothesis B.

The conditional probability P(A|Bj) of event A is determined by dividing the values of this indicator by the sum of its values; the full probability is determined as the sum of multiplications of P(Bj) by P(A|Bj). The posterior probability of hypotheses P(Bj) is defined as the quotient of dividing the corresponding component of the full probability formula by the total value of P(A).

Bayes' theorem is one of the basic laws of probability theory and allows us to determine the probability of one event based on knowledge of the probability of other random events present in the predicted time interval. The Bayes formula allows to specify economic indicators and list the value of their probabilities taking into account dynamic changes of indicators or their indices, using both known information and data of new observations of changes of these indicators in the forecast years. It is used when there is information about causal variables (risks and opportunities), and the essence of the study is to determine the probability of occurrence of the resultant variable (development). Thus, given a conditional probability P(B|A) of occurrence of some event B (provided that event A occurs), Bayes' theorem gives a solution to the inverse problem, what is the probability of occurrence of event A, provided that event B occurred.

According to the calculation of the probability of small business development under the proposed foresight scenarios after the implementation of a number of measures to improve the species support of small business development, the Bayes formula will look like this:

$$P(prob/risk) = \frac{P_{(risk/prob)}P_{(prob)}}{P_{(risk)}}, \quad (6)$$

where P(prob/risk) – conditional probability of realisation of development opportunities in the presence of corresponding risks, i.e. probability of development of a small enterprise according to realistic, optimistic (closed) and optimistic (open) scenarios, respectively, which allows characterising the effectiveness of implementation of the proposed foresight measures to improve the type of support; P(risk) – a priori probability of occurrence of the risk of transformation of the national economy; P(risk/opportunity) – a posteriori probability of occurrence of risks.

Calculation of a posteriori probability of MF development under three scenarios is shown in Fig. 2 [2, 3, 15, 23].

Forecasting the probability of realisation of scenarios of small enterprise development		
Justification of possible scenarios of small enterprise development: pessimistic scenario (Pes); realistic scenario (Real); optimistic (closed) scenario (OptC); optimistic (open) scenario (OptO);		
Estimation of the probability of transformation of existing opportunities into strengths		Assessment of risks of national economy transformation that may affect the realisation of small enterprise development scenarios (r)
Methodological tool		
Hierarchy analysis method Pi		*Expert determination of weighting coefficients N*
Results		
PiF = 0,412	Financial and credit support	*rF: Pes: 0,89; Real: 0,63; OptC: 0,42; OptO: 0,32*
PiE = 0,346	Educational support	*rF: Pes: 0,91; Real: 0,57; OptC: 0,387; OptO: 0,314*
PiL = 0,363	Institutional and legislative support risk	*rL: Pes: 0,92; Real: 0,514; OptC: 0,277; OptO: 0,23*
PiP = 0,361	Property or material-technical support	*rP: Pes: 0,91; Real: 0,281; OptC: 0,183; OptO:*
PiI = 0,364	Information support	*rI: Pes: 0,894; Real: 0,461; OptC: 0,283; OptO:*
PiC = 0,347	Consulting support	*rC: Pes: 0,91; Real: 0,523; OptC: 0,361; OptO:*
Justification of possible scenarios for the development of a small enterprise		
Priori probability estimation		
A priori probability calculation Papr = PiF*rF+PiE*rE+PiL*rL+PiP*rP+PiI*rI+PiC*rC		Calculation of posterior probability after realisation of scenario forecasting targets Papost = (Papr * Pi)/ri
Papr1 = 1	Pessimistic scenario	Papost1 = 0,96
Papr2 = 0,898	Realistic scenario	Papost2 = 0,874
Papr3 = 0,568	Optimistic (closed) scenario	Papost3 = 0,878
Papr4 = 0,436	Optimistic (open) scenario	Papost4 = 0,514

Fig. 2. Forecasting the probability of realisation of scenarios of small enterprise development under conditions of state support and economic transformation

Conclusions. In general, it can be argued that the implementation of foresight measures is impossible without the state's participation not only in supporting the development of small business, but also in creating favourable conditions of the economic environment, including achieving a low inflation rate, settling imbalances in foreign economic policy, conducting economic deregulation and stimulating tax reform, which will ensure the inflow of local and external capital into the economy, etc. At the same time, an important task of the state in the sphere of small business development (both managers and working staff) is to increase economic literacy and build new knowledge in the spheres of realisation of type support. Indeed, a key factor in the development of small business is the level of theoretical knowledge among existing and potential entrepreneurs on doing business. Therefore, state assistance in creating a network of organisations that provide information, advice and training is a particularly important foresight measure to ensure the development of small business.

In the last decade, small business in Latvia is in constant development, taking into account the target benchmarks of not only survival but also development of small business in the international arena, the application of classical management strategies based on the principle of "planning from the existing" is no longer sufficient for comprehensive and permanent development. Latvia needs a

clear strategy of small business development, which will be based not on attempts to "survive" among increased competition, but on ensuring sufficient competitiveness and attractiveness of Latvian small business, which is possible to implement only by imitating a favourable future for small business and determining on this basis measures to achieve prospective goals. We believe that the need to take into account the specific features of small business, the existing opportunities and risks of their activities, the trends of changes in the legislative framework of their development, entails the need to develop such a well-thought-out strategy of state support, with the aim of acquiring practical skills to identify measures and recommendations to obtain the desired future of small business and the development of tactical steps to achieve the vector guidelines of development. Small business entities identify the need to transform the survival strategy traditionally used by Latvian small businesses into a competitive strategy, which involves transformation of services, introduction of a new service strategy and servitisation. The latter is understood as a strategic transformation of small business, which, according to the cyclical nature of the economic environment, deliberately introduces new service elements into its business model, relying on the resources allocated within the framework of the state strategy to support small businesses.

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DOI https://doi.org/10.30525/2592-8813-2024-spec-19

THE GLOBALIZATION CONTEXT OF THE DEVELOPMENT OF THE EXPORT OF HIGHER EDUCATION IN THE WORLD

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Abstract. The problem of the globalization of education was analyzed and it was determined that it unfolds in three main directions: 1) the possibility of involving participants in global education in the global values of humanity, such as sustainable development and environmental protection; 2) the impact of the development of informatization and time-space boundaries on the emergence of new forms of education on a global scale; 3) the possibility of social explanation of pedagogy in the conditions of globalization, which is expressed in changes in the contexts of critical pedagogy, pedagogy of intercultural communications, etc. The trends of globalization of education, manifested in a completely new process of formation of the market of global educational services, lead to the justification of a new pedagogical system, the characteristic features of which in many respects can already be determined today, in particular: first, the processes of commercialization of education and the emergence of transnational and non-university providers on markets of educational services gradually lead to the transformation of the educational process formed during the thousand-year history of the existence of university education, which accumulated the achievements of spiritual culture; secondly, the globalization of education and the wide use of technological possibilities of communications, which are not provided with adequate didactics, contribute to the deterioration of the quality of professional education and training; thirdly, the reduction of the influence of classical institutional education with, mainly, the physical presence of the subjects of the learning process, increases the risk of desocialization of students locked in the limited space of the computer and deprived of the possibility of dialogic communication with peers and teachers, which for centuries was considered the cornerstone of education personality Globalization and export of higher education are different, but interrelated concepts. Globalization involves the circulation of ideas, resources, personnel, economic models, cultures, knowledge, goods, services and technologies on a global scale. It is determined that the export of higher education is aimed at establishing mutual understanding between nations, people, cultures, institutions and systems. During the last decades of intensive development, the scale, sphere of influence and quality of export of higher education have increased. The modern interpretation of the process of exporting higher education as the circulation of personnel does not take into account the potential threat of individual mobility, in particular in the direction of competition for talented youth between countries with the greatest shortage of scientific personnel. Secondly, the growing demand for international qualifications leads to the use of fake diplomas issued by so-called "diploma factories", as well as to an increase in the number of "accreditation factories" that certify the fraudulent activities of unscrupulous universities. Thirdly, in a number of countries there is an excessive desire to receive income from the tuition fees of foreign students, which causes a decrease in academic standards and the development of "visa factories". Fourth, increased commercialization of transnational franchising and joint educational programs represent a threat to the quality and relevance of higher education in some regions of the world. That is why in further studies it is necessary to pay serious attention to the definition and cultivation of values that form the basis of the export of higher education.

Key words: export of education, globalization, higher education, development.

Introduction. The world community is aware that, under the influence of technological evolution, the processes of interdependence between countries, which are now called "globalization", have gained significant strength. Globalization as a profound multifactorial phenomenon characterizes the transformation of all types of social relations: politics, economy, religion, culture, education, which move in the direction of world openness. Taking into account the mentioned changes, in particular in

the development of free financial and human capital, information and telecommunication technologies, is a necessary condition for the participation of various countries in the globalized economy of the 21st century. and effective use of its opportunities for the integration of educational strategies and inclusion in SOP [1, p. 5].

The multifaceted nature of the globalization phenomenon consists in many manifestations, first of all, in the growing volume of exchange of material and spiritual values between different peoples, as well as in the interpenetration and so-called "mixing" of nations and languages as a result of migrations. Despite the long debate about the unification of the definition of the phenomenon of globalization, scientists define the key concept of its essence as "increasing interdependence" [2, p. 4]. It is obvious that now it is necessary to supplement the understanding of globalization as a process that transforms various parts into a single whole, transforming the world community into a world society.

Basic theoretical and practical provision. The vast majority of scientists associate the origin of globalization mostly with the post-war period of the mid-40s of the 20th century, namely with the creation of the United Nations in 1945. Indeed, over the past fifty years, the rate of spread of the "common" has significantly accelerated and continues to gain momentum. The problem of the conceptual and categorical apparatus of the study of globalization is also supplemented by the question of the content and direction of this phenomenon. J. Knight and the executive director of the European Association of International Education, H. Callan, note in their writings that it is inappropriate to consider the development of international relations only from the point of view of globalization, since other processes – regionalization or fragmentation – are taking place at the same time. However, researchers are convinced that fragmentation is not an opposite process, but exists as an organic component of globalization. After all, during the formation of geopolitical regions, individual states gradually weaken and break up into fragments, and then into individual individuals who later become citizens of regional society (for example, we can consider the process of Europeanization), and therefore, in a similar way, scientists predict, the world will acquire a global character [3].

So, globalization can be understood in different ways: as a geospatial process of growing interdependence and convergence, in which global or regional spheres of activity are being improved; as the initial stage of functioning of world markets; as an exchange of knowledge and art objects within a common space. Globalization undoubtedly affects the international development of all spheres of social life, accelerating some processes, slowing down others and changing the direction of others. It would be interesting to investigate the impact of globalization on each of them, but our attention is drawn to the genesis of social processes, which is accompanied by an awareness of the importance of the role of higher education in these conditions.

Economic and cultural globalization, as a process of "expansion, deepening and acceleration of worldwide interdependence" [4], started a new era in the development of higher education, which has always been distinguished by openness in the international arena. Higher education has been significantly transformed under the influence of globalization, turning into a kind of center of change, which, thanks to the worldwide network interaction of universities and academic exchange, is gradually changing the social, economic and cultural character of society's life. In the global economy of knowledge, higher education institutions over the past few decades have gradually turned into an environment of transnational relations, continuous global movement of people, information, technologies, knowledge products and financial capital.

The well-known researcher of globalization processes, P. Scott (P. Scott) aptly defined the role of universities in this context: "Not all universities carry out international activities, but all of them obey the processes of globalization – partly as objects and even victims of these processes, and partly as sub "objects or key agents of globalization" [5]. It is hard not to agree with these words, because for the first time in history every university is part of a worldwide research network, and leading scientists have an unprecedented influence on the development of society on a global scale. The scientific

and research activity of these institutions is acquiring an increasingly transnational dimension thanks to the increased mobility of teachers and scientists. And the creation of a global market of educational services and international rankings of universities contributed to a large extent to the emergence of a specific global criterion in the structure of the academic labor market, which affects the employment opportunities of teaching staff. All the mentioned changes caused a thorough rethinking of the strategies of higher education functioning and the development of the higher education system as a whole, both at the local (national) and international levels.

Even half a century ago, international relations were somewhat marginal in the daily activities of universities, with the exception of the scientific and research sphere. Today, the ever-increasing impact of the global environment seems an inevitable reality. In many countries, such phenomena as transnational mobility, global comparisons and rankings of higher education institutions have become key issues of strategic development, and government officials and university leaders are full of thoughts about the politics of transnational cooperation and competition.

If previously there was a trend of dominance of the Anglo-American economic and cultural essence of globalization, now a pluralistic environment with elements of globalization of the American, European, Chinese or other type is being formed. However, like any long and unfinished process, it is difficult to grasp the possibilities of globalization in a holistic way, so the Anglo-American essence of global convergence is more obvious than the convergence process itself [6]. It is worth noting that American educational traditions differ from other English-speaking countries, however, over the past two decades, Australia and Great Britain have made changes in the system of organization and financing of higher education and have come closer to the USA. The second global center in the field of education and science after the USA is Great Britain, whose authority plays a major role in matters of culture, language and the development of management practices [7]. In the context of the above, for many countries of the world, globalization in the field of higher education turns out to be a process of Anglo-Americanization, especially in the activities of universities, in which national identity is formed.

At the same time, the globalization of higher education is not a universal phenomenon, it has certain features according to the localization of manifestation (local, national, regional or global level), the use of language and academic culture, as well as the type of educational institution. In a global network environment, where information about every university and national system of higher education is open and instantly available, it is no longer possible to stay away from the influence of globalization.

The editor of the scientific magazine "Politics of Higher Education" G. Neave emphasizes the dual nature (economic and cultural) of globalization in his writings. On the one hand, the scientist claims, globalization has caused the emergence of world markets that function in real time of traditional financial systems. On the other hand, it is based on worldwide communication, information, knowledge and cultural systems that form a single world community [8, 9].

Higher education serves as the basis for conducting research and producing knowledge, is a necessary condition for the development of language, information and intercultural contacts, and is also a connecting link with mass media. Considering the fact that information and knowledge are phenomena with a high degree of mobility that easily cross borders, it can be argued that the cultural sector of higher education is becoming more globalized than the economic one. Cultural globalization is greatly facilitated by the Internet, thanks to which worldwide data repositories are developed, as well as cooperation between universities, stimulating meetings in real time and virtual space [10].

Due to its mobility, higher education and science are considered key elements in the process of shaping the global environment, producing knowledge and technologies, creating transnational associations and permanent complex communities of like-minded people. That is why scientists are unanimous in their conclusions that no national system, except for higher education, interacts with another

national system on such a scale or with similar intensity [11, p. 19]. According to P. Scott, higher education institutions, as a rule, positioning themselves as objects of globalization, also become its leaders [5, pp. 108–129]. And research universities, which are interconnected by intensive interaction within the so-called "global cities" (global cities), are, according to P. McCartney, the main nodes of the networked globalized educational space [12, p. 205–224]. D. Bloom, studying this phenomenon, noted that there is a stable positive correlation between the involvement of citizens of a certain region or country in higher education and his/her global competitiveness and vice versa [13, pp. 21–41].

The globalization of higher education varies considerably across countries, depending on national policies, leadership and management. The fact is that institutions of higher education implement their involvement in the global system within the limited space of national approaches to educational and economic policy, public administration, etc. One of the examples of the process of globalization is the spread of new state management in higher education. In world practice, the reaction of higher education systems to the challenges of globalization was determined by reforms of national systems, in particular, regarding the organization of higher education institutions, which led to the emergence of a new state administration.

The essence of the new state administration is:

1) modeling of national systems of higher education as economic markets;

2) competition between institutes under government supervision and competition between academic units of institutes under management supervision;

3) partial decentralization of responsibility for administration and fundraising;

4) stimulation of cost reduction and formation of an entrepreneurial style of behavior;

5) introduction of new or expansion of existing value indicators;

6) stimulation of relations with business and industry;

7) measurement of results and financing based on performance;

8) establishment of quasi-corporate relations with financial structures (introduction of contracts, reporting and audit procedures).

It is obvious that the implementation of the new state administration in the organization of universities in different countries contributed to the universalization of higher education systems, that is, their acquisition of a uniform form and organizational and management practices. The new public administration has spread significantly in Australia, Great Britain, New Zealand, at the same time, it was applied on a smaller scale in the countries of Western Europe and North America.

According to S. Marginson's conclusions, one of the results of the said reform is to increase the readiness of universities and higher education systems for global challenges, thanks to the introduction of competition into their activities, the achievement of effectiveness and openness. In particular, in Great Britain, Australia and New Zealand, the new state administration contributed to the development of an entrepreneurial and profit-oriented approach to transnational cooperation [11, p. 20].

It is important to realize that global relations, the subjects of which are national systems of higher education and universities, are not stable, unified and predictable, since different countries and educational institutions have different potential for perceiving globalization and functioning in its conditions. J. Douglas (J. Douglas) emphasizes that "globalization is local", because global convergence depends on local, subnational and national influence, as well as balancing forces, which include government regulation and national academic culture [14].

Considering the above, the researchers justify three types of potential global transformations in the system of higher education with different consequences for national states and relations between the state and higher education institutions, namely:

1) integrative global transformation;

2) national-convergent global transformation;

3) national parallel global transformation.

Let's consider them in more detail. Integrative global transformation embodies global processes of the integration type, which, unlike the national type, are difficult to change or stop by national agents. These include, in particular, the development of Internet publications and the formation of a global market for highly qualified labor, which differs from national labor markets. National-convergent global transformation assumes that global systems and relations, which generate general changes in national systems of higher education, are under the influence of convergence and integration. That is, the question lies in the influence of transnational interaction at the national level on global harmonization. Examples of such relationships are the use of English as the language of academic exchanges or studies in master's or doctoral programs.

National-parallel global transformation assumes that parallel reforms, which are carried out simultaneously by the governments of several countries on the basis of common ideas and models, lead to convergence and promote interaction between different national systems of higher education. An example of such a transformation can be the processes of Europeanization of higher education in the European region [11, p. 24].

Integration and national-convergent transformations contributed to the strengthening of the so-called "relativistic" status of universities, which is associated with the spread of informal requirements of world standards, which are formed in the process of convergence and harmonization of the structures of academic degrees of universities, as well as procedures for recognizing diplomas and guaranteeing the quality of education ; introduction of global comparison ratings of education systems and educational institutions, international benchmarking of universities and academic disciplines.

The results of the world university rankings contribute to the spread of global relativization and bring it to the institutional level, because the governments and the public of most countries are concerned about the positions of their universities in the world ranking. However, determining the place of universities in global rankings, the government and the public participate in the formation of a model of higher education as a global competition of individual universities. This model partially removes educational institutions from the supervision and control of the national government, since the state is not able to fully understand all the transnational connections of universities. At the same time, most universities continue to depend on government regulation and resource support, since the state is the main source of funding. N. Fligstein assesses the situation as follows: almost 80% of production is related to the state, which determines the limits for making political decisions in the field of higher education. Most governments delegate management functions to a lower level and carry out decentralization, but none of them takes responsibility for managing the sphere of higher education [9, p. 204].

In some countries, national authorities have a great influence on the regulation of transnational activities of higher education institutions, and in almost all countries, governments influence the transnational interaction of educational institutions by distributing resources and creating conditions for communication, cooperation and mobility [10, p. 21]. Such attention of the state leadership is connected, first of all, with the need to make higher education competitive in the era of globalization, as well as capable of bringing benefit to national development. It is a difficult task to create an appropriate toolkit and motivation system that would allow maintaining a balance between competition and cooperation between universities.

Taking into account the existing models of global transformations and the interaction of the national state and educational institutions in the conditions of the globalization of education, the researchers developed a four-zone structure for the formation of global educational policy and strategy in the field of higher education. The structure is presented in the form of four separate but interconnected zones, within which the government and universities, both separately from each other and jointly, develop strategies and policies in the field of education.

Such zones are:

1) intergovernmental negotiations;

2) global connections of universities;

3) conditions of functioning of national education systems created by the government;

4) local program of higher education institutions.

Even two decades ago, almost all strategies were formed in the lower half of the scheme. Now the situation has changed, as the creation of a global strategy has become a priority for many countries and educational institutions. Within the global space of higher education, countries and universities can be both "dependent on the situation" and "creators of the situation". Their dependence is determined by inherited geographical features, historical, economic, political and cultural specificities, including education systems and the organization of research. In the future, thanks to their own efforts, countries and universities can complement and develop their own global potential and, accordingly, improve their position.

Given the initial "position" on a global scale (current at the time of strategy development), countries and universities are offered appropriate global steps to "create the position".

In general, S. Marginson and M. van der Wende come to the conclusion that states and universities operating in the global arena have two interdependent goals:

1) to maximize the potential and effectiveness of higher education within the global space;

2) to optimize the benefits received from transnational activities, when returning to the environment at the national and local level.

The implementation of such political goals depends on a real understanding of the global space of higher education, the initial position of the country and the educational institution in it, as well as on internal and external opportunities for the implementation of strategies [10, p. 27].

So, economic and cultural globalization heralds a new era in the development of higher education. Transnational relationships and strategies have gained special importance for governments and educational institutions of most countries. For the first time in history, every university is part of a single global network, and educational institutions that have become world leaders in their field have unprecedented global power. In Europe, North America, and Southeast Asia, governments are seeking to develop research-friendly education policies to increase investment in university research. Global higher education represents a much more open field than national education systems, providing opportunities for innovation, partnerships and markets.

To maximize the results of activities in a global environment, on the one hand, it is essential to preserve national identity, and, on the other hand, it is important to be open and interact with other participants. For example, one of the reasons for the success of American higher education in the global space was a special combination of decentralization and centralization of its management. Thus, American universities actively operate in the almost unregulated sphere of transnational individual mobility by the government, making the most of the space for American initiatives and influence, minimizing the potential of other countries by limiting them in the process of intergovernmental negotiations. At the same time, domestically American universities are much better coordinated than it seems at first glance, because they are united by a common culture, a sense of national dignity and recognition of the American way of life, which binds them more strongly than the directives of the government. Undoubtedly, some forms of transnational activity of higher education institutions require regulation at the level of national policy. However, for effective work at the global level, higher education institutions most need increased autonomy, openness, predictability, and moderate state funding and investment. It is much more difficult to think through measures for the coordination of universities in such a way as to promote the development of their autonomous global potential and the achievement of a common strategic goal. Another difficulty lies in the unclear definition of the role of the national government in the transnational activities of the country's higher education insti-

tutions, because globalization has transformed the traditional idea of the role of the government in the development of higher education, which is concentrated within state borders.

On the one hand, the factor of changes was the introduction of a new state administration, on the other – the growth of transnational communications and activities in which universities directly interact with partners outside the country. Despite the fact that universities continue to use national resources, they partially leave the political context of the country of origin. That is, the influence of the national government on the management of higher education remains significant, but it must share its functions with other actors, including governments of other countries, international agencies and universities.

Globalization of higher education significantly affects the national educational policy of most countries of the world. Scientists note the existence of certain discrepancies between the transnational character of cultural and economic relations, which, on the one hand, is characterized by the rapid transfer of information, relatively free movement of people, educational institutions and educational programs, and on the other hand, by the dominant nature of national educational policy and higher education management, and as well as labor markets formed at the national level. In other words, there is a discrepancy between the globalized world and national governmental structures regarding the development of an effective educational policy of transnational interaction at the state and institutional levels.

In the global educational space, processes of integration and convergence have been initiated, primarily at the regional level, and regulatory, economic and political foundations are being created (on the initiative of international organizations) to ensure full-fledged transnational cooperation of countries and educational institutions. F. Altbach notes that "globalization contributed to strengthening the internationalization of universities and expanding its scope" [15]. With this statement, he updates the analysis of specific principles, approaches, strategies, types of activities and the impact of internationalization on higher education at the regional, national and institutional levels, as well as in their comparison.

S. Marginson and J. Rhoades (G. Rhoades) under the term "internationalization" or "export of education" understand interstate relations between countries or individual universities located in different countries. In their opinion, this phenomenon contrasts with globalization, which embodies the processes of worldwide absorption and convergence associated with the growing role of global systems that cross national borders. As a rule, several countries are involved in the process of exporting education, while globalization penetrates most countries and is a dynamic process of local, national and global convergence [16, 281–309].

It is obvious that globalization is more capable of transformation, as it directly affects the communication, economic, cultural and political foundations of the country, it changes the foundations of national identity, and also affects the system of higher education within the country and beyond. Instead, the export of education has a limited impact, as it involves the definition of a society as a nation-state that functions and maintains its borders in the economic, social and cultural system, even as the relationship with other countries increases. P. Scott suggests that globalization transcends the boundaries of national identities and contains the potential for hostility towards nation-states. In a certain sense, the globalization of higher education is an alternative export of education, and even the opposite. Although their mutual exclusion is not at all mandatory [5, pp. 108–129].

The export of education continues to develop in the era of globalization, accelerating within interdependent global systems and contributing to their development. The difference between globalization and the export of education is as follows: national systems become more integrated, which implies globalization, or more interconnected, according to internationalization.

H. Beerkens is sure that the trends of globalization and export of education constantly complement and stimulate each other. Such a situation implies that the relations in the "globalization – export of

education" system are better described as dialectical, not mutually exclusive, linear, cumulative. The scientist proves the dialectical nature of the relationship between the two types of transnational interactions using the example of a modern university as a certain institutional structure that functions in international and global contexts. Initially, the university's activities were regulated within the framework of pan-European mobility and university Latin traditions, which determined global relations. Currently, worldwide networks of scientific disciplines are building a powerful academic identity, which later influences the formation of national scientific schools [17].

The current stage of the development of higher education is characterized by the presence of four strategies for the export of education within the educational policy of the developed countries of the world, as evidenced by the results of the projects of international organizations-initiators:

1) strategy of coordinated interaction;
2) the strategy of attracting qualified labor force;
3) strategy for obtaining profits;
4) strategy of expansion of opportunities.

It is obvious that these strategies are rarely implemented individually, and in practice, the educational policy of a certain country focuses on a combined approach to strategy development and implementation, relying on one of them as the main one.

In our opinion, it is obvious that the choice of strategy by a certain country is determined not only by external geopolitical factors, but, first of all, by the national socio-economic and historical context, opportunities, resources and priorities. However, despite the objectivity and obvious irreversibility of the process, not all countries are ready to consider it as part of their development strategy. The reason for this, according to experts, lies in the unequal capabilities of countries to respond to the need to interact in the united world economic and cultural field.

Thus, at the current stage, many partners enter into dialogue with the aim of recruiting students at the international level, obtaining profits and achieving high positions in international rankings of universities. The main problem in partnership relations is the inability to guarantee transparency of the specified goals, and the use of a holistic approach helps to ensure honesty and transparency of intentions, goals and dialogue in the process.

Conclutions. Therefore, the importance and relevance of a holistic approach to the export of higher education is obvious and does not require additional explanations, as it ensures transparency, consistency and consistency of this process in order to improve results and increase the effectiveness of partnership interaction. UNESCO's international consultant on higher education, R. Chao, presented his own position on the development of the concept of exporting higher education in the "idealism-utilitarianism" paradigm. He explained his vision as follows: the formation of the global market of higher education over the past 25 years, the change in the system of financing higher education institutions, the strengthening of the idea of higher education as a private good, the growth of demand for it and, as a result, the massification of higher education served as an impetus for the formation of a utilitarian approach to exports higher education. In addition to training a globally competitive workforce, the export of higher education has become a powerful commercial tool, helping to finance higher education institutions, as well as strengthening immigration and higher education control mechanisms.

The rapid development of the export of higher education, international and joint educational programs, the openness of the market for branches of foreign universities have called into question the national educational sovereignty of a number of countries, which contributes to the further commercialization of higher education and strengthens the utilitarian role of the export of higher education. However, the expert believes that the higher education sector is not limited to the utilitarian tasks of producing human capital to ensure national and regional economic growth. Traditionally, universities are at the epicenter of social and scientific development, where future citizens of the world and global

leaders are trained, and the development of civil society and the fight against social problems are the basis of the mission of a modern university.

Therefore, the export of higher education has political, socio-economic, cultural and academic foundations and is a mutual process that proceeds simultaneously from the top down and from the bottom up. Moreover, the process of export of higher education takes place inside and outside the national system of higher education. Ideally, the export of higher education should focus not only on the economic component of the world, but also on political, cultural, academic processes that involve the formation of personality, improvement of society, and the development of global citizenship. In the conditions of growing interdependence of the processes taking place all over the world, the export of higher education is inevitable, but it should not destroy the local culture, instead, the differences between regions and countries should be built into the processes of internationalization and contribute to the formation of a new generation of bearers of local cultures who will make their contribution in solving such global tasks as the protection of human rights, reducing the level of poverty, protecting the environment, and achieving sustainable development.

So, idealistic and utilitarian approaches reflect different aspects of exporting higher education. The essence and functions involve a combination of both approaches, which in each country is adapted to its political, socio-economic, cultural and historical features. Despite the external pressure of globalization and regionalization, the nature and direction of the export of higher education in each country depends on the formed ideas and projected expectations. The process of exporting higher education should be considered taking into account the multidimensionality of political, socio-economic, cultural and academic aspects affecting it.

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BOOK OVERVIEW

In this section we offer you a few books, which from our point of view fully meet the special issue of the magazine and the materials proposed by the authors: Future Money.

Today's world, modern economy, new digital financial technologies, social problems and ways to solve them, bright opinion leaders, all these themes in the proposed review.

1. Momentum. From Crises to Opportunity. Kjell Nordström
(2023) ISBN 9789179652944

A brilliant, colourful business speaker, professor at the Stockholm School of Economics, international corporate strategy consultant, author of such bestsellers as Funky Business, Karaoke Capitalism, and Urban Express.

Each of the works represents in its own way the identification of patterns and trends characteristic of the modern world, as well as the number of professionals who have read these books (or attended the lectures), contribute to the programming of the reality around us.

The authors analyse what happened in the world during and after the pandemic, worsening climate risks, and war. Thus they give a formula for the three crises happening simultaneously right now: "Carbon Dioxide, Viruses, Bombs" and say that a new world order is taking shape in which we all have to live.

They ask the questions:

What new risks in the form of viral diseases are facing humanity?

What will a major war in Europe lead to?

Is humanity in a position to deal with climate threats?

What will become of globalization, perhaps it has already become just a memory?

Is everything that is happening a fact of the formation of a new era?

And at least the last question, gets a clear answer, because it looks as "year zero", a new starting point.

What will it be like, a new era?

2. **Earth for All – A Survival Guide for Humanity.**
Sandrine Dixson-Decleve, Owen Gaffney, Jayati Ghosh
(2022) New Society Publishers. Club of Rome

The Club of Rome, which united 300 member scientists, began its work in the second half of the twentieth century. Already the first reports, modelling the possibilities of the planet, taking into account population growth, aggressively developing consumer economy, shook the world and became influential documents. These are the report "Limits to Growth" about the coming overpopulation of the planet, the book of the Club leader Aurelio Peccei "The Human Quality", the report dated 2018 *"Come On! Capitalism, Short-termism, Population and the Destruction of the Planet", totally more than 40 papers presented to the general public by this distinguished association of scholars.*

The new report, titled "Earth for All", is defined by scientists as a kind of survival manual for humanity.

For the report, the scientists used computer modelling, the Earth4All model. Of the many possible scenarios for the book, two were chosen: "Too Little, Too Late" and "Giant Leap".

The "Too Little, Too Late" scenario demonstrates what can happen if the current economic system continues more or less as it has for the past 50 years.

The second scenario, Giant Leap, asks what would happen if the economic system were changed through a radical and extraordinary effort to create a more sustainable civilisation".

Data on the state of the Earth plays an important role in the proposed study, but it is primarily about the practical steps that need to be taken to turn the course of humanity for the better.

The scientists' assumption that "it is not too late" positively sounds. The problem is the rapidly passing of time. The challenge remains the lack of seriousness of national governments facing planetary-scale risks.

3. Stakeholder Capitalism. A global economy that works for progress, people and planet. Klaus Schwab

(2021) By World Economic Forum. Published by John Wiley & Sons, Inc., Hoboken, New Jersey

Klaus Schwab is founder and executive chairman of the World Economic Forum in Geneva, Switzerland.

The author of such bestsellers as "The Fourth Industrial Revolution" and "Technologies of the Fourth Industrial Revolution" offers you a book devoted to the search for answers to the question "what kind of capitalism do we need?".

Of those that exist (or have existed), he considers shareholder capitalism, where the pursuit of profit is considered the primary goal of companies. It has been the dominant form in many Western companies. The second option or form is state capitalism (state capitalism), where the direction of economic development is determined by the state. This model has become dominant in many developing countries.

And a form of stakeholder capitalism is proposed as the best answer to today's social and environmental problems. Its general ideology is that companies act as trustees of society.

The author dwells in great detail on the existing imbalances in the modern world, and the picture is not a happy one: a divided society (finance, availability of knowledge and resources, etc.); consumer society and problems of ecology and restoration of the planet; global financial crises; challenges and risks of new technologies and their availability.

Klaus Schwab emphasizes generational change and the growing social impact of responsible business conduct and investment. New criteria for assessing the performance of companies are proposed:

Shared value creation indicator: it should serve as a complement to financial indicators and allow to take into account objectives related to companies' environmental impact, social responsibility and quality of corporate governance (environmental, social, governance – ESG).

The second criterion that needs to be adjusted is the remuneration of top managers. In the new paradigm, where the interests of all parties are taken into account, salary should rather be equated with the creation of long-term shared value.

The third point lies in the realization by Business (companies) and the state (state capitalism) that they have come to play such an important role in our world that they themselves have a stake in creating our common future. There is no doubt, that professional specialization, skills and abilities, entrepreneurial spirit should be developed. But a business (company) must do this not only for its own sake, but also – together with other stakeholders – for the sake of the world. This should be its highest goal.

4. Artificial Intelligence: A Guide for Thinking Humans. Mitchell Melanie

(2019) Farrar, Straus and Giroux

Artificial Intelligence – this term is perhaps one of the most popular in recent years. The boom of the year 2022–2023 is the appearance of GhatGPT, which also forever changed the attitude to such moments as writing scientific articles and books, text translation and so on. However, the application of AI is much wider – from space programs to database analysis when making financial decisions, so we should talk about a serious impact on all spheres of life.

The author of the book, American computer scientist Melanie Mitchell, a professor at Portland State University and the Santa Fe Institute, details the path of development (or evolution?) of artificial intelligence, the level it is at today, and what awaits us all in the near future.

The progress made in the last decade is so solid that eminent scientists or opinion leaders in the field are expressing their apprehension.

For example, in 2014, physicist Stephen Hawking stated that "the development of full artificial intelligence could mean the end of the human race".

His concerns were echoed by Elon Musk, who called artificial intelligence "probably the greatest threat to our existence".

And in the same year (2014), for the first time, AI in the form of chatbot Zhenya Gustman was able to pass the Turing test, formally proving that a machine can think.

This book analyses all the main developments in this area available today. It gives an excursion into the field of AI skills and abilities: what it can already do, what it cannot do, and how and what it is learning right now.

The book reviews the main futurological forecasts, trying to imagine what our world will be like in the foreseeable future, and, most importantly, trying to find an answer to the question whether a machine endowed with artificial intelligence is really a completely new round of human evolution, an evolution that will follow a technological path, not a biological one, as predicted by inventor and futurologist Ray Kurzweil.

According to this futurologist, we will reach a state of technological singularity (namely, the moment when humans will no longer be able to control the development of AI) by 2045.

5. Surrender. 40 Songs, One Story. Bono
(2022) Hutchinson, Heinemann

"An outstanding book by an outstanding man," is how professionals and fans who have already had the joy of reading it characterize this book. In fact, there is nothing to add to it.

The first book by the leader of the legendary band U2, written by him personally in the form of memoirs. The construction of the book is very original: 40 chapters are named after the songs of the band and 40 drawings are created by the author.

Singer's early years in Dublin, the capital of Ireland, early departure of his mother and a difficult childhood. The creation of lyrics, music, band: "people, places and opportunities in my life" as the author himself says about it.

Success of the group, activity of Bono in dight against poverty and the AIDS, isn't this a responsible attitude to the people around you, to doing business?

Sometimes one opinion leader through his or her creativity can change the attitude of millions towards an issue.

It remains to be added that fans of the band will soon meet a new album with a similar title "Songs Of Surrender".

6. The End of Theory: Financial Crises, the Failure of Economics, and the Sweep of Human Interaction. Richard Bookstaber
(2019) Princeton, University Press

Richard Bookstaker is a professional risk manager whose career has been spent at such notable banks as Morgan Stanley, Salomon Brothers and a number of hedge funds, including Ray Dalio's Bridgewater.

In the modern world only uncertainty is predictable. The crises of 1987, 2007–2008, 2010 with devastating and very fast-moving as the crisis events occurred, have led to the fact that the economic theory of the last decades and even centuries does not work. The works of many distinguished Nobel

laureates have been trampled upon. As it turned out, none of the existing models of the theory can be used to predict crises. Thus, just a few months before the onset of turbulent events in 2007, the IMF gave positive forecasts for the development of the world economy and the U.S. economy in particular...

The reason for all this is the lack of consideration of the nature of people. All economic theory or developed models are built on the assumption that commercial companies and people follow some single and rational logic of behaviour and actions. The reality is that we live in a world of endless human decisions, doubts and emotions.

Richard Bookstaber proposes to take into account the consequences of people's interaction with the world around us and its impact on us.

7. Misbehaving: The Making of Behavioral Economics. Richard H. Thaler
(2016) W.W. Norton & Company

A book that will be of undoubted interest to those interested in aspects of the economics of consumer impressions and emotions.

Richard Thaler is an American scientist who won the Nobel Prize in Economics for his contributions to the study of behavioural economics.

In the book, he explores the emotions that guide the customer and the complexities they face during the buying decision. The methodology allows in many ways a different assessment of such areas as marketing, service management, sales as such.

Through his research, the author demonstrates how to anticipate employee and customer behaviour and create the product or offer that will really cause a stir.

Managing emotions, creating additional value and value in the eyes of the client, is a fairly new area of both science and practical business.

Technologies, pricing policy, training of specialists can be largely copied and replicated at the industrial level, while creating a unique emotion in the consumer is an obvious competitive advantage and an aspect of service that is almost impossible to repeat – to copy.

8. Embedded Finance: When Payments Become An Experience.
Scarlett Sieber, Sophie Guibaud.
(2022) Wiley

The book is about new economic direction of economics which becomes more important. Embedded finance is one of the most in-demand trends by the young population of the planet, the so-called Millennials and Generation Z.

According to McKinsey in 2022, the revenue from embedded finance solutions reached 20 billion dollars in the US alone, Forbes estimates that by 2026 the volume of BNPL (buy now pay later) transactions will reach 576 billion dollars (five times growth!). Is it possible not to be interested in such a thing?

The authors in their book offer their reader:

– Some practical examples of how embedded finance is used by some companies today by technology companies and to redefine client online and offline retail experiences.

– The key trends, players, and technologies that are paving the way for embedded finance to take a dominant position in our lives.

– The role, opportunities, and strategies for banks, technology companies and brands, providing them with all necessary tools to define their own embedded finance strategy.

– The impact of embedded finance on society, consumers, companies, and the economy as a whole, highlighting the dominant force that is embedded finance for our future.

– An exciting view of how our day-to-day lives will look like in 2030, powered by embedded finance.

The book is worth reading.

9. Digital Currencies and the New Global Financial System.
Ranjan Aneja, Robert Dygas
(2023) Routledge

This book provides the reader with the analyses of the current debate around Central Bank Digital Currencies (CBDC) and the future of New Global Financial System. It offers deep insight into the global monetary policy in the context of digital and cryptocurrencies and examines both the opportunities and challenges to come.

In the book one can find a distinction between digital and cryptocurrencies and answers several research questions, such as what the consequences of forming Central Bank Digital Currencies and their impact on the financial markets might be, on the example of advanced and developing economies. The book questions whether the role of monetary policy easing influence positively the virtual currency market, while still others relate to the impact of the pandemic on international settlements. The book also discusses the issue of investment in cryptocurrencies, and the related risks, whether or not this is a profitable investment vehicle, and how the digital banking system evaluates such investments, it also deals with the post-pandemic challenges for central banks and future monetary policy. A complex review of the literature and given econometric models of digital currencies and cryptocurrencies, a wide geographic focus make it really quite interesting for the researchers, scholars and future specialists of international finance and economics.

10. Inequality: What Can Be Done? Anthony B. Atkinson
(2015) Harvard University Press

Sir Anthony Barnes Atkinson is a renowned economist and professor at Oxford University. Atkinson's works are devoted to the study of inequality, the causes of its emergence and the possibilities of its reduction. One of the indicators of social inequality, the Atkinson Index, is named after him.

In his works, he concludes that it is impossible to build a society of full equality in the context of market capitalism, especially taking into consideration that everyone. When the market economy allows the individual characteristics of everyone realise his characteristics into factors of success or failure.

But at the same time, he is a strong supporter of the idea of reducing inequality as much as possible. And the solution to this problem, from his point of view, should be controlled by the state. It is the state that must limit the appetites of the rich, eliminating undeserved advantages of the new generation of the rich. Globally, it looks like this: in order to maintain an optimal balance between the poor and the rich, it will be necessary to increase government spending on social programs, as well as to encourage social partners and interested non-profit organizations.

In the book, Atkinson sets out 15 proposals for reducing inequality, from introducing an ethical pay code (where the poorest earn more than the basic minimum wage) to limiting the maximum amount of savings per saver.

Economic inequality not only exacerbates social stratification and debilitates society, it essentially deprives the state of future, positive development.

The review was prepared by the editor of the special issue of the Journal Alexey Aleksandrov,
Visiting Professor of the Baltic International Academy

INFORMATION FOR AUTHORS

"Baltic Journal of Legal and Social Sciences" publishes articles in English. The theme of the article should be disclosed in a clear, logical and well reasoned way.

The requirements to the structure and the layout of articles are the following:

• The size of the submitted article, including the bibliography, should be within 20,000–70,000 characters with spaces. The article is presented in Microsoft Word, paper size – A4, margins along the edges of the page – 20 mm on each side.

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1. the title of the article is written in capital letters (font Times New Roman, font size 12 pt, Bold, Center);

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• The article should have the following basic structural parts consecutively emphasized in the text: the statement of the problem, its relevance / importance, the analysis of recent publications on the subject of the article, the purpose of the research conducted by the author, main findings, conclusions, and the list of references. The titles of the structural elements, as well as parts of the article, in the case of their designation by the author, should be marked in bold.

• The bibliographic list of regulations, normative acts and references to literary sources is placed at the end of the article with the use of the numbering arrangement starting with the first reference to the source of information in the main body of the text (font Times New Roman, font size 12 pt).

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Baltic Journal of Legal and Social Sciences, 1, Special issue (2024).

Izdevniecība “Baltija Publishing”
Valdeķu iela 62-156, Rīga, LV-1058
Iespiests tipogrāfijā SIA “Izdevniecība “Baltija Publishing”