

Integrated Assessment of Ukraine Monetary Security Level

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Abstract: In the article, the authors made an integrated assessment of monetary security level by calculating the impact of the monetary system set of indicators and Ukraine's monetary policy. To build an integrated indicator for assessing the level of monetary security, the authors identified 14 main monetary indicators which were divided into stimulants and where stimulants. For each indicator, the authors calculated the level of impact on monetary security. To calculate the integrated level of monetary security assessment, the authors used two methods: with the establishment of weights for each of the output indicators and without it. In this case, the possible values of the integrated indicator of monetary security W_i belong to the segment $[0; 1]$, and its unit and zero values correspond to the best and worst value of the monetary security indicator. With the dignity of the two approaches, calculated indicators of monetary security of Ukraine reached the minimum value in 2015. A similar trend was also characterized regarding to monetary security highest level, observed in 2013. At the beginning of 2020, the level of monetary security was set at 0.558 (0.531). Slight deviations between the calculated integrated indicators of the level of monetary security indicate the accuracy of the calculations of both the first and the second approach. Both approaches can be used in practice by regulators and government agencies. According to the results of the study, we conclude that the integrated indicator of the level of Ukraine's monetary security in 2020 is within satisfactory limits, due to the objective current trends of the national economy.

Keywords: Monetary sphere, Level of monetary security, Calculation, Integral assessment, Policy indicators.

1. INTRODUCTION

Monetary security of the country is defined as the appropriate level of protection of the country's financial interests, the level of currency stability, the balance of monetary and credit, tax, banking, investment and calculating systems that resist threats and challenges of the external and internal environment; the ability of the state to effectively use the capabilities of the financial system to meet the needs and perform its functions, in order to ensure socio-economic development (Myskiv et al., 2021). The main conditions for achieving monetary security are the existence of a perfect monetary system, which provides for the stability of the national monetary unit, the timely implementation of the main parameters of the principles of monetary policy for a certain year, realization of effective management of cash flows at the state level, protection of the financial interests of monetary market

subjects, implementation of correct anti-inflationary measures (Ivashchenko et al., 2018; Sardak et al., 2021). At the same time, in our opinion, monetary security is a complex concept that includes not only the stability of the monetary market, but also the stability of the currency market, banking, investment and settlement systems. This makes it necessary to consider monetary security as the basis of financial and economic security, as the basis of all processes and relationships in the state (Latysheva, 2020; Pogodayev, 2013).

The monetary security of the state is ensured through: high-quality formation of state and local budgets, the state of the payments' balance, the ratio of the national currency in the regulated (official) and shadow economy, the level of currency recovery in circulation, ensuring the stability of the banking system, the movement of currency funds, etc. Therefore, the study of monetary security, the means of its achievement and the factors affecting on it is extremely relevant in the modern global environment, which constantly creates new challenges and threats to monetary stability. However, it is worth noting the excessive volatility and unpredictability

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bility of the dynamics of financial indicators in the monetary sphere. Such a tendency complicates forecasting due to the high level of uncertainty and characterizes the state's modern economic system as chaotically structured. In addition, this trend continues to intensify and necessitates a constant analysis of the state of the economic system and the development of effective levers of influence on individual components of financial and economic security, including monetary security (Halushchak et al., 2020; Bobrovnyk et al., 2022).

In modern economic conditions, monetary security is one of the key components of both financial and economic security of the country as a whole. In practice, various tools and concepts are used to define and assess the monetary security of the country, but there are no integral indicators that would allow a comprehensive assessment of monetary security (Osiejewicz, 2020). The list of indicators and sources of input information on the components of economic security, in particular on monetary and credit security, is presented in the Guidelines on calculating the level of economic security of Ukraine, approved by the Order of the Ministry of Economic Development and Trade of Ukraine dated 29.10.2013 No1277 (Law of Ukraine No v1277731-13 "On the approval of Methodological recommendations ...", 2013). However, the proposed list does not cover the whole set of monetary security indicators, which is much broader than monetary and credit security. Therefore, the development of an integral indicator for assessing the level of monetary security based on a set of monetary indicators is extremely relevant. This would make it possible to respond more effectively to predicted changes in the monetary sphere and develop measures to adequately counter threats to monetary security.

Scientific works on statistical modeling and forecasting, econometric modeling became the basis of research and construction of an integral indicator for assessing the level of monetary security. Thus, Prymak V. (2003) indicates and provides formulas for the implementation of integrated assessment, indicates the possibility of using stimulants and disincentives. Pliuta V. (1989) provides methods for ordering the elements of a multifaceted population, a division of the population into groups, the choice of groups' typical representatives, several original classification algorithms and reduction of descriptions, which allowed to investigate economic phenomena affecting monetary security, despite a large number of variables. Yerina A. (2001) explores various methods of statistical modeling and forecasting, which allowed for a qualitative integrated assessment of monetary security. Roy Webb (Webb, 1999) identifies a combination of elements using the economic justification of the model residues relationship with structural parameters, which made it possible to analyze the consequences of monetary policy. Burkart O. (Burkart & Coudert, 2000) examines and searches for indicators of economic crises (including the currency crisis) in different demographic areas, which has a direct impact on the monetary security level.

Monetary security Ukrainian scientists considered in the context of financial or economic security. In particular, the concepts, essence and factors influencing the level of monetary security are studied in the works of the authors Rozhko O. and Aleksanyan R. (2017), Dyachek S. and Panasyuk O. (2013), Gudzovata O. (2018).

The study was supplemented by indicators of Ukraine's National Bank (National Bank of Ukraine, 2022a; 2022c) and Ukraine's Ministry of Finance (Ministry of Finance of Ukraine, 2022a) the analysis and evaluation of which allowed to calculate the real monetary security level of Ukraine during 2010-2022 and identify the main disincentives. The purpose of the article was to highlight the list of monetary indicators, the impact of which on the monetary security of the state is decisive, to classify indicators of monetary security by stimulating and destimulating effects and to conduct an integral assessment of monetary security based on calculated data.

2. MATERIALS AND METHODS

The study of National Bank of Ukraine's materials and reports regarding the state of the national monetary system and implementation of monetary policy in 2010-2022 (National Bank of Ukraine, 2019; 2022b), made it possible to identify the main indicators that most fully characterize the monetary status of the state and at the same time directly affect the state of monetary security as well as determine its:

- NBU discount rate, %;
- inflation rate, %;
- volume of gold and foreign exchange reserves of the National Bank, million USD;
- exchange rate of the US dollar;
- level of dollarization of loans, %;
- level of dollarization of household deposits, %;
- volume of deposits, UAH million;
- volume of loans to the economy of Ukraine, UAH million;
- share of overdue credit debt, %;
- level of monetization ($M2 / GDP$), %;
- share of cash outside banks in the total money supply ($M0 / M3$), %;
- difference between interest rates on loans to the economy and interest rates on deposits, interest points;
- share of consumer loans to households in the total structure of loans to residents, %;
- share of long-term loans in the total volume of loans granted by banks to the economy, %.
- The dynamics of the main indicators of monetary security of Ukraine in 2010-2022 are presented in Table 1.

The statistical method made it possible to analyze the reports of the National Bank of Ukraine and to draw certain conclusions based on them.

In 2022, the threat to national monetary security was high inflation, an excessively high NBU discount rate, and a rapidly growing exchange rate, which directly affects and destabilizes all areas of the economy. However, it is worth noting the direct impact of the military actions in Ukraine on the

Table 1. Dynamics of the Main Indicators of Monetary Security (at the Beginning of the Year).

Year	volume of gold and foreign exchange reserves of the National Bank. billions USD	volume of deposits. UAH million	volume of loans to the economy of Ukraine. UAH million	level of monetization (M2 / GDP), %	difference between interest rates on loans to the economy and interest rates on deposits. Interest points	share of consumer loans to households in the total structure of loans to residents. %	share of long-term loans in the total volume of loans granted by banks to the economy. %	NBU discount rate	inflation rate. %	exchange rate of the US dollar	level of dollarization of loans. %	level of dollarization of household deposits. %	share of overdue credit debt. %	share of cash outside banks in the total moneysupply (M0 / M3). %
2010	25.28	416 650	732822	53	8.2	27.9	31	8.58	109.1	7.985	46.03	42.57	9.67	32
2011	35.14	491 756	801809	55	9.1	24.5	29	7.75	104.6	7.962	40.31	42.97	11.58	31
2012	31.36	572 342	815142	52	5.4	22.5	25	7.5	99.8	7.989	36.75	44.04	9.61	28
2013	24.65	669 974	910 782	55	6.3	20.7	22	6.75	100.5	7.993	33.82	37.05	8.9	26
2014	17.81	675 093	1020667	62	8.9	20.2	19	12	124.9	7.993	44.33	41.37	7.7	26
2015	6.42	716 728	981 627	61	10.1	17.4	21	23.75	143.3	15.768	55.8	45.3	13.5	30
2016	13.44	793 475	998 682	50	6.8	16	22	17.33	112.4	23.784	49.4	46.26	21.1	28
2017	15.44	898 844	1016657	46	7	16.7	26	14.72	113.7	26.692	43.9	45.38	30.6	29
2018	18.58	932 967	1073131	41	6.3	18.3	26	17.3	109.8	27.89	42.8	42.05	57.1	28
2019	20.82	1071666	971 871	36	6.1	21.2	23	16.7	104.1	27.688	36.9	41.66	52.9	28
2020	25.30	1348130	948386	36	9.0	21.0	21	6.0	105.0	23.686	38.2	37.7	48.4	27
2021	29.13	1406733	980 990	44	12.2	22.6	16.1	9.0	110.0	28.273	30.7	35.7	37.2	34.2
2022	30.94	1503909	1044049	38	13.3	23.2	14.2	25.0	138.0	27.276	28.9	32.4	30.0	31.2

Source: calculated by the authors on the basis of (National Bank of Ukraine, (2022a; 2022d); Ministry of Finance of Ukraine (2022b).

state of the monetary system and the decisive actions of the NBU and the Government regarding the maximum restraint of stability in the banking and monetary spheres. A positive indicator of the NBU’s professional actions in the direction of ensuring monetary security was the volume of gold and foreign exchange reserves, which at the beginning of 2022 reached the maximum value in the last 12 years. This made it possible to maintain the stability of the monetary system at the beginning of the war (February-March 2022), when the monetary system was under the influence of the panic mood of the population and legal entities. That is, with the aim of increasing the level of state’s monetary security, the National Bank of Ukraine adjusted the principles of monetary policy, taking into account the state of war in the country (Shcherbak et al., 2019).

At the same time, the study of the problem of formation and provision of monetary security requires a detailed assessment of its level, and therefore it is necessary to focus on the formation of an integral indicator that would allow to calculate

the level of monetary security and predict its dynamics. The reliability of the assessment of the state monetary security level will depend on the quantitative parameters of the impact of each of the selected monetary indicators on the integral indicator.

In order to combine the unit indicators of the system into an integral assessment, they must first be standardized, namely, they should be reduced to one type, as the unit indicators are usually disproportionate. Standardization is carried out, as a rule, by replacing the individual values of the set of indicators of the x_{ij} complex with relative P_{ij} values. These values are calculated as the ratio of individual values of the unit indicator to a certain basic value of the j -th unit indicator. The basic value is taken, for example, the average values of the indicator in the complex, the minimum or maximum value or the normative value of the indicator (Yerina, 2001):

$$P_{ij} = \frac{x_{ij}}{\bar{x}_j}, \tag{1}$$

Table 2. Classification of Monetary Security Indicators.

Stimulants	Destimulants
1. volume of gold and foreign exchange reserves of the National Bank, million USD;	1. NBU discount rate, %;
2. volume of deposits, UAH million;	2. inflation rate, %;
3. volume of loans to the economy of Ukraine, UAH million;	3. exchange rate of the US dollar;
4. level of monetization (M2 / GDP), %;	4. level of dollarization of loans, %;
5. difference between interest rates on loans to the economy and interest rates on deposits, interest points;	5. level of dollarization of household deposits, %;
6. share of consumer loans to households in the total structure of loans to residents, %;	6. share of overdue credit debt, %;
7. share of long-term loans in the total volume of loans granted by banks to the economy, %.	7. share of cash outside banks in the total money supply (M0 / M3), %;

Source: author's development.

$$P_{ij} = \frac{x_{ij}}{x_{j,et}}, \tag{2}$$

$$P_{ij} = \frac{x_{ij}}{x_{j\min}}, \tag{3}$$

x_{ij} - is the value of the j -th unit indicator (feature) of monetary security for the i -th period;

\bar{x}_j - the average value of the j -th unit indicator of monetary security for the period under study (n years);

$x_{j,et}$ - reference value of the j -th unit indicator (feature) of monetary security for the period under study;

$x_{j\min}$ the minimum value of the j -th unit indicator (feature) of monetary security for the period under study.

Since the unit indicators that characterize the level of monetary security of Ukraine have different directions of influence, it is necessary to identify in the analyzed system of initial parameters the stimulants and destimulants.

The growth of stimulants has a positive effect on the state of monetary security, and the growth of destimulants is of a negative effect on monetary security. Based on the method of logical analysis, regarding the impact of the selected indicators on the monetary system's state, the authors grouped the stimulators and destimulators of monetary security. Table 2 presents the distribution of the primary indicators system into these groups.

Standardization of initial values for indicators-stimulants is performed according to the following formula (Prymak, 2003):

$$P_{ij} = \frac{(x_{ij} - x_{j\min})}{(x_{j\max} - x_{j\min})}, \tag{4}$$

$x_{j\max}$ is the maximum value of the j -th unit indicator (feature) of monetary security for the period under study.

For destimulants, the standardization procedure will be carried out using the following formula (Prymak, 2003):

$$P_{ij} = \frac{(x_{j\max} - x_{ij})}{(x_{j\max} - x_{j\min})} \tag{5}$$

In the case of an increase in the value of the unit indicator-destimulant, the final integral assessment should decrease.

It should be noted that some unit indicators that describe different aspects of a country's monetary security do not affect its overall level to the same extent. In view of this, when determining the level of monetary security, the significance of each of the following indicators should be taken into account: the greater the impact it has on the overall assessment, the greater the significance of its value factor α_j will be. The sum of the value factors must be equal to one, namely (Pliuta, 1989):

$$\sum_{i=1}^m \alpha_j = 1 \tag{6}$$

Based on the need to take into account the impact of all selected indicators, the integral indicator of the level of monetary security (W_i) will be presented as follows:

$$W_i = F(\alpha_{i1} P_{i1}, \alpha_{i2} P_{i2}, \dots, \alpha_{im} P_{im}), \tag{7}$$

F - is a kind of a scalar function.

In order to achieve the most effective result, we will use two methods when carrying out an integral assessment of the monetary security level:

- all initial indicators of the monetary security level have the same value when constructing an integral indicator;
- with settling of the value factors for each of the output indicators.

Whatever approach is used for calculating the integral monetary security indicator, it should be started with the standardization stage. Standardization of stimulants indicators is performed according to formulas (4) and (5). Constructed standardized values of primary indicators are presented in Table 3.

The absolute integral indicator of the level of monetary security W_i will be formed according to the formula:

Table 3. Standardized Values of Basic Indicators of Monetary Security.

Year	volume of gold and foreign exchange reserves of the National Bank. million USD	volume of deposits. UAH million	volume of loans to the economy of Ukraine. UAH million	level of monetization (M2 / GDP), %	difference between interest rates on loans provided to the economy and interest rates on	share of consumer loans to households in the total structure of loans to residents. %	share of long-term loans in the total volume of loans granted by banks to the economy. %	NBU discount rate	inflation rate. %	exchange rate of the US dollar	level of dollarization of loans. %	level of dollarization of household deposits. %	share of overdue credit debt. %	share of cash outside banks in the total money supply (M0 / M3). %
2010	0.657	0.000	0.000	0.654	0.354	1.000	1.000	0.864	0.786	0.999	0.363	0.266	0.960	0.268
2011	1.000	0.069	0.203	0.731	0.468	0.714	0.881	0.908	0.890	1.000	0.576	0.237	0.921	0.390
2012	0.869	0.143	0.242	0.615	0.000	0.546	0.643	0.921	1.000	0.999	0.708	0.160	0.961	0.756
2013	0.635	0.233	0.523	0.731	0.114	0.395	0.464	0.974	0.984	0.998	0.817	0.665	0.976	1.000
2014	0.396	0.238	0.846	1.000	0.443	0.353	0.286	0.579	0.423	0.998	0.426	0.353	1.000	1.000
2015	0.000	0.276	0.731	0.962	0.595	0.118	0.405	0.158	0.000	0.616	0.000	0.069	0.883	0.512
2016	0.245	0.347	0.781	0.538	0.177	0.000	0.464	0.579	0.710	0.221	0.238	0.000	0.729	0.756
2017	0.314	0.443	0.834	0.385	0.203	0.059	0.702	0.553	0.680	0.078	0.442	0.063	0.536	0.634
2018	0.423	0.475	1.000	0.192	0.114	0.193	0.702	0.368	0.770	0.029	0.483	0.304	0.000	0.756
2019	0.501	0.602	0.702	0.000	0.089	0.437	0.524	0.605	0.901	0.029	0.703	0.332	0.085	0.756
2020	0.658	0.857	0.633	0.000	0.456	0.420	0.405	1.000	0.880	0.226	0.654	0.618	0.176	0.878
2021	0.791	0.911	0.729	0.308	0.861	0.555	0.113	0.842	0.766	0.000	0.933	0.762	0.403	0.000
2022	0.854	1.000	0.915	0.077	1.000	0.605	0.000	0.000	0.122	0.049	1.000	1.000	0.549	0.366

Source: calculated by the authors on the basis of statistical data.

$$W_i = \sum_{j=1}^m \alpha_j \cdot P_{ij} \tag{8}$$

Thus, we proposed a methodology for calculating the integral indicator of monetary security W_i based on the use of two approaches, taking into account the importance of indicators of monetary security. The list of monetary indicators was obtained analytically. Standardized values of the main indicators of monetary security are obtained by a calculation method based on the use of a statistical method.

3. RESULTS

The development of the state’s economic system is directly related to the state of the monetary system - it is the basis of all relations within the national economy and the basis for effective foreign economic relations. However, in the open and vulnerable to global influences, the economy of Ukraine permanently has internal monetary imbalances, which are expressed in changes in stabilizing and destabilizing monetary indicators. A decrease in stabilizing monetary indicators and an increase in destabilizing indicators create threats to

the monetary security of the state, which, in turn, creates threats to the security balance of the financial system and the national economy in general (Myskiv et al., 2020).

Therefore, it is extremely important to be able to assess the current level of monetary security and predict its dynamics in the future, in order to minimize the impact of monetary threats on the financial and economic security of the state. Based on the developed methodology for calculating the integral indicator of monetary security, we will estimate its level using two approaches.

According to the first approach, all output factors are equally value in the construction of an integral indicator of monetary security, therefore (formula 9):

$$\alpha_j = \frac{1}{14}, j = \overline{1.14} \tag{9}$$

To use the second approach - with the establishment of weight coefficients for each of the initial indicators, we rank the selected monetary indicators according to the level of

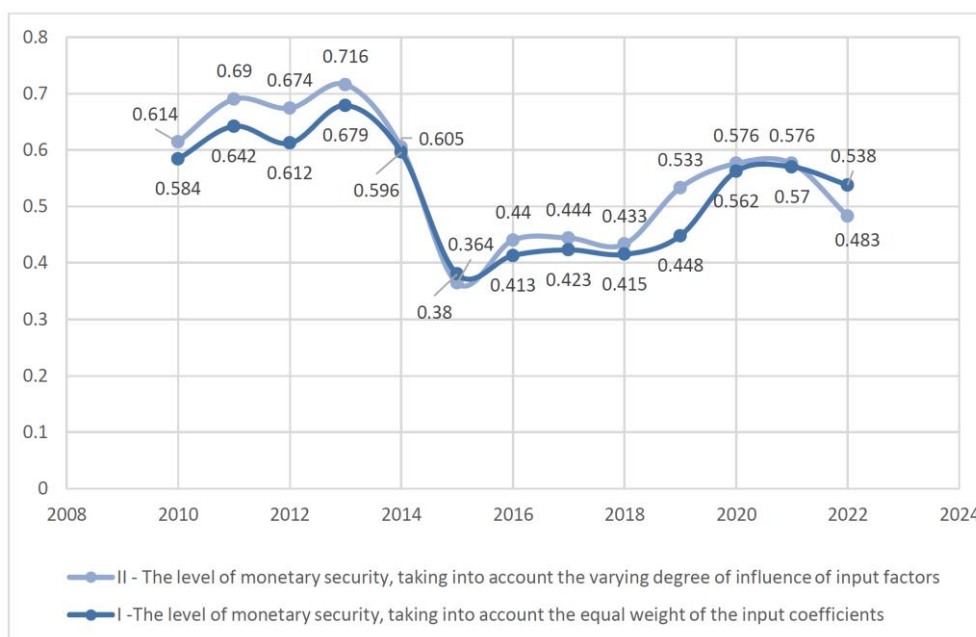


Fig. (1). Dynamics of the level of monetary security of Ukraine in 2010-2022 (according to I and II approaches) (as of the beginning of the year).

Source: calculated by the authors.

their influence on the monetary system's stability. At the same time, the sum of the weighting factors must be equal to one (formula 10):

$$\sum_{i=1}^m \alpha_j = 1, \alpha_j = |0.1|, j = \overline{1.14} \quad (10)$$

The highest value of α_j belongs to the indicator whose impact on the level of monetary security is the highest - *the inflation rate*. The lowest value of α_j belongs to the indicator from which the threat to the monetary system is the smallest - *the difference between interest rates on loans provided to the economy and interest rates on deposits*.

The integral indicator of the level of monetary security W_i in this case will also be calculated according to formula (8). However, it will be determined as the sum of the products of the criterion weight and the standardized value of the monetary security indicator. Possible values of the integral indicator of monetary security W_i belong to the segment $[0; 1]$, moreover its unit and zero values correspond to the best and the worst value of the monetary security indicator.

Based on the Methodological recommendations for calculating the level of economic security of Ukraine (Ministry of Economic Development and Trade of Ukraine, 2013), we will determine the characteristic values of the level of monetary security W_i :

- 0- minimal or absolutely dangerous security level;
- 0.2-0.3 - critical security level;
- 0.4-0.5 - dangerous level of security; 0.6-0.7 - unsatisfactory level of security; 0.8-0.9 - satisfactory level of safety;
- 1 - optimal security level.

It is assumed that an acceptable level of monetary security starts at 0.51 and the above indicator. A level of up to 0.5 is a threat to economic security.

The dynamics of the level of monetary security of Ukraine in 2010-2022, formed on the basis of an integral indicator in accordance with the first and second approaches, is presented in Fig. (1).

Thus, according to two approaches, the calculated indicators of the level of Ukraine's monetary security reach a minimum in 2015 – 0.380 and 0.364, which proved a dangerous level of monetary security. The highest level of monetary security was in 2013 – 0.679 and 0.716, which indicated a satisfactory level of monetary security. During 2016-2022, there was a positive trend in the level of monetary security with a slight reduction in 2022. However, the positive dynamics of the level of monetary security that has been observed in recent years of the studied period, was within the limits of dangerous-unsatisfactory and failed to restore the level of monetary security to the indicators of 2011-2013. Slight deviations between the calculated integral indicators of the level of monetary security indicate the accuracy of the calculations of both the first and the second approach. Both approaches can be used in practice by regulators and government agencies.

According to the calculated integral indicator the level of monetary security of Ukraine, four stages in the period under study of 2010-2020 are distinguished:

- 2010-2014 – unsatisfactory level of monetary security – positive dynamics of growth of the level of monetary security of Ukraine from 0.584 (0.614) in 2010 – to 0.679 (0.716) in 2013, which is the maximum of the integral indicator for the period of 2010-2022;

- 2015 – critical level of monetary security, which in 2015 reached a minimum value of 0.380 (0.364), that is twice less than the maximum level in 2013. This negative trend was caused by a sharp decrease in gold and foreign exchange reserves – by 11385.93 million \$ for two years; rapid growth of the NBU discount rate (from 12% in 2014 to 23.75% in 2015) and high inflation, which in 2015 constituted 143.3% and was the highest during the period under study (Kuzheliev et al., 2020);
- 2016-2019 – dangerous level of monetary security, although during the period a positive growing dynamic was observed. The strengthening of Ukraine's monetary security and an increase in its level, which at 2019 amounted to 0.448 (0.533) took place;
- 2020-2022 unsatisfactory level of monetary security with a tendency to further decrease. The level of monetary security at the beginning 2022 was 0.538, (0.483), which is 0.032 (0.093) below the 2021 level.

Thus, we developed an integral indicator based on which the level of monetary security of Ukraine was calculated for 2010-2022. The obtained result turned out to be quite realistic: the level of monetary security of Ukraine during 2010-2022 never reached an optimal high value. This indicates the permanent presence of threats in the monetary system, which negatively affect the monetary security of the state, and require the development of certain countermeasures through the improvement of the NBU's monetary policy.

4. CONCLUSIONS

The conducted research made it possible to derive the formula of the integrated indicator of the level of monetary security of Ukraine, which can be calculated in two ways. The obtained integral indicator makes it possible to calculate the level of the state's monetary security and to predict its dynamics. The main indicators for calculating the integrated indicator are: the NBU discount rate, inflation rate, the volume of gold and foreign exchange reserves of the national bank, the dollar exchange rate, the level of loans dollarization, the volume of household deposits and others.

The calculation of the level of Ukraine's monetary security in 2010-2022 made it possible to obtain a realistic result. The obtained results of calculating the level of monetary security of Ukraine in 2010-2022 made it possible to assert that each of the two approaches to calculating the level of monetary security is acceptable for use and reflect the current state of the monetary system of Ukraine. However, from the point of view of the NBU's regulatory activity, we consider the second method to be more reliable, which allows, through ranking, to identify the most important indicators of the monetary sphere, the action of which has the greatest impact on the level of monetary security of the state. Based on this review, the NBU should direct its efforts to neutralize the negative impact of the prevailing destabilizing factors, which will allow to minimize threats from their side to monetary security, as well as to reduce threats to national financial and economic security.

Therefore, the priority areas of monetary policy to achieve monetary security should be:

- active increase of gold and foreign exchange reserves in order to create a reliable “financial cushion” for the financial system and counteraction of monetary risks, especially of external origin;
- further implementation of the monetary regime of inflation targeting in order to keep inflation indices within the annual target values;
- reduction of the portfolio of non-performing loans due to restructuring, partial writing-off and development of a strategy for managing problematic assets of banking institutions in order to prevent them in the future;
- regulation of the exchange rate in order to limit its pressure on the national economic system;
- reduction of dollarization of banking institutions balance sheets, restrictions on foreign currency settlements between residents and non-residents in the domestic market.

According to the calculated integral indicators, the level of monetary security of Ukraine in 2010-2022 did not reach an optimally high value in any year. This indicates the constant presence of threats in the monetary system, which negatively affect the monetary security of the state, and require the development of certain mechanisms to counteract them.

The unstable military and political situation in Ukraine, provoked by Russia's military invasion of our territory, had a significant impact on the decrease in the level of monetary security in 2022. Obviously, a combination of military and political factors will threaten monetary security as long as the enemy invasion continues. Therefore, the NBU should continue to actively resist to the growth of destabilizing monetary indicators in order to maintain monetary security at a sufficient (unsatisfactory - 0.5-0.6) level.

REFERENCES

- Bobrovnyk, S., Shevchenko, A., Didych, T., Khodanovych, V., & Dei, M. (2022). Methodological strategy of modern knowledge of law: A manifestation of formal lawmaking in agriculture sector. *International Journal of Agricultural Extension*, 10(2), 71-76. DOI: <https://doi.org/10.33687/ijae.010.00.3859>
- Burkart, O. & Coudert, V. (2000). Leading indicators of currency crises in emerging. *Documents de Travail*, 74, 46-54.
- Dyachek, S. & Panasyuk, O. (2013). Monetary security of Ukraine: Essence, threats, assessment. *Bulletin of ZhSTU*, 2(64), 227-233.
- Gudzovata, O. (2018). Mechanisms for the implementation of monetary policy in the system of strengthening the financial security of Ukraine. Lviv: NNVK “ATB”, 300 p.
- Halushchak I., Kuzheliev M., Melnyk V., Myhovyh T., Zhytar M. (2020) Methodical Aspects of Evaluation of Financial Architecture of Economy. *WSEAS Transactions on Business and Economics*, 17(27), 260-268.
- Ivashchenko, A., Polishchuk, Y., & Britchenko, I. (2018). Implementation of ICO European best practices by SMEs. *Economic Annals-XXI*, 169(1-2), 67-71. DOI:10.21003/ea.V169-13
- Kuzheliev, M., Zherlitsyn, D., Rekunenko, I., Nechyporenko, A. & Nemsadze, G. (2020). The impact of inflation targeting on macroeconomic indicators in Ukraine. *Banks and Bank Systems*, 15(2), 94-104.
- Latysheva, O., Rovenska, V., Smyrnova, I., Nitsenko, V., Balezentis, T., & Streimikiene, D. (2020). Management of the sustainable develop-

- ment of machine-building enterprises: A sustainable development space approach. *Journal of Enterprise Information Management*, 34(1), 328-342.
- Law of Ukraine No v1277731-13 "On the approval of Methodological recommendations for calculating the level of economic security of Ukraine" (2013). Retrieved from: <https://zakon.rada.gov.ua/rada/show/v1277731-13#Text>.
- Ministry of Finance of Ukraine (2022a). *Gross domestic product (GDP) in Ukraine*. Retrieved from: <https://index.minfin.com.ua/ua/economy/gdp>.
- Ministry of Finance of Ukraine (2022b). *Inflation index in Ukraine*. Retrieved from: <https://index.minfin.com.ua/ua/economy/index/inflation>.
- Myskiv, G., Tsaputa, V. & Hryhoryshyn, N. (2020). Identification of threats of the monetary system to the economic security of the state. *Problems of Economics and Management*, 4(2), 49-58.
- Myskiv, G., Grygoryshyn, N. & Levyska-Revutska, O. (2021). Efficiency of monetary policy in the context of achieving monetary security in Ukraine. *Zeszyty Naukowe Wyższej Szkoły Bankowej w Poznaniu*, 92(1), 13-32.
- National Bank of Ukraine (2019). *Deposits attracted by deposit-taking corporations*. Retrieved from: https://bank.gov.ua/admin_uploads/article/annual_report_2019.pdf?v=4.
- National Bank of Ukraine (2022a). *Annual report of the NBU*. Retrieved from: <https://bank.gov.ua/ua/statistic/sector-financial#1ms>.
- National Bank of Ukraine (2022b). *Estimation of the foreign direct investment's volume for 2010-2022*. Retrieved from: https://bank.gov.ua/ua/file/download?file=FDI_round_trippling_ICL-DFS.pdf.
- National Bank of Ukraine (2022c). *International reserves*. Retrieved from: <https://bank.gov.ua/ua/markets/international-reserves-allinfo>.
- National Bank of Ukraine (2022d). *Loans granted by deposit-taking corporations*. Retrieved from: <https://bank.gov.ua/ua/statistic/sector-financial/data-sector-financial#1ms>.
- Pogodayev, S. E. (2013). Marketing of works as a source of the new hybrid offerings in widened marketing of goods, works and services. *Journal of Business and Industrial Marketing*, 28(8), 638-648.
- Pliuta, V. (1989). *Comparative multidimensional analysis in econometric modeling*. Finance and Statistics. Moscow: Nauka, 175 p.
- Pryimuk, V. (2003). *Regional labor markets of Ukraine: Transformation and mechanisms of regulation*. Lviv: Lviv Publishing Center, 105 p.
- Rozhko, O. & Aleksanyan, R. (2017). Monetary security of Ukraine and ways of its software. *Internauka*, 2(24), 120-125.
- Sardak, S., Britchenko, I., Vazov, R., & Krupskyi, O. P. (2021). Life cycle: Formation, structure, management. *Ikonomicheski Izsledvania*, 30(6), 126-142.
- Shcherbak, V., Nifatova, O., Kuzheliev, M., Erkes, O., & Mylashko, O. (2019). The assessment of corporate social responsibility at Ukrainian banks. *Banks and Bank Systems*, 14(3), 140-151.
- Osiejewicz, J. (2020). Transnational Legal Communication: Towards Comprehensive and Consistent Law. *Foundations of Science*, 25, 441-475. DOI: <https://doi.org/10.1007/s10699-020-09655-3>
- Webb, R. (1999). Two Approaches to Macroeconomic Forecasting. *Economic Quarterly*, 85(3), 23-40.
- Yerina, A. (2001). *Statistical modeling and forecasting*. Kyiv: KNEU, 170 p.

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