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**AN ASSESSMENT OF UKRAINE'S FINANCIAL SECURITY:  
SECTORAL BREAKDOWN AND GENERAL LEVEL**

*Financial security is characterized by the state's ability to ensure stability of the country's financial and economic development and includes the security of various economic activities and spheres of social life. The article assesses the security of the components of Ukraine's financial sector and calculates the overall level of financial security in this country.*

*The author considers the current mechanism for determining the level of financial security. To date, in Ukraine, the Methodology for determining the level of financial security is in force, which is approved by the Ministry of Economy based on the "Methodological recommendations for calculating the level of economic security of Ukraine" created according to a quantitative study of indicators characterizing the level of Ukraine's overall economic security and that of financial security as its priority component.*

*Calculated security levels of the financial sectors, namely those of the banking sector and the non-banking financial sector, as well as debt, budget, currency and monetary security. The most problematic is the debt sector whose security level averages 16.9% for the analyzed period. The overall level of financial security has a downward trend (44% in 2021). Ukraine's economy is not protected from financial threats and imbalances.*

*The author identifies a few shortcomings in the above mentioned Methodology. As it was developed in 2013, its indicators no longer reflect the real situation in the country, while its methods mainly focus on analyzing financial indicators and ignore non-financial information, external factors, and the impact exerted on overall financial security by its individual components. The article points to the need to improve the mechanism of assessing the level of*

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*national financial security and provides a series of corresponding proposals.*

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**Formulation of the problem.** Financial security as a constituent element of economic security significantly affects the level of economic growth in the country. Low indicators of the transparency of the Ukrainian economy and macroeconomic instability push for research in the direction of increasing the level of the country's financial security. Risks in the field of financial security prevent the reform of the economy, do not provide an opportunity to maintain the necessary degree of economic growth.

The role of public finances in modern conditions is that they act as an important tool for influencing the processes of social reproduction, maintaining the rates of economic growth, development of key sectors of the economy, and structural restructuring of the economy. In connection with this, the question of forming and ensuring a sufficient and reliable level of financial security of the state is becoming more and more urgent.

However, the level of security in the market against financial threats is rather difficult to assess. This requires the use of special methods and models that could best describe the conditions in which business entities operate.

**The purpose** of the article is to assess the level of the main components and financial security of Ukraine in general, to develop recommendations for improving the existing methodology for calculating economic security.

**Analysis of research and publications.** In the economic literature, financial security is considered as a complex phenomenon that is influenced by a number of factors. It is a key component of the economic and national security of the country, and, according to J. Heiker, F. Rehm and M. Schlesinger, also the security of every person [1].

Financial security is a multifaceted phenomenon: it is primarily a component of economic security, and economic security, in turn, is a subsystem of the state's national security [2]. In work [3] it is noted that the financial security of the state is most effectively ensured under the conditions of the state system of strategic management of the economy, with the formation of a complex - forecasting, projecting, programming and planning.

Well-known scientists R. Inglehart and P.R. Abramson [4], based on the data of global public opinion surveys of countries regarding values, found that young and well-off people in Western democracies are less and less concerned about purely material problems regarding income, and more interested in the problems of civil liberties and security.

Domestic scientists H. Blakyta, O. Matusova, G. Lanovska and V. Adamenko note that modern approaches to assessing the level of state security are mainly based on integral assessments and the use of quantitative indicators [5]. In foreign practice, there are developed management criteria based on a comprehensive analysis of ensuring the appropriate level of financial security (Canons of safety). It is appropriate to mention the works of M. Chihak, S. Muñoz, Sh. Tech Sharifuddin and K. Tinchev [6]; A. Demirgyuch-Kunt, E. Detagyash, T. Tressel [7]; and R. Edwards [8], where the role of international organizations in the development of indicators of the country's financial security is shown against the background of considering the problems of financial instability.

To date, a special mechanism for determining the level of financial security has been implemented in Ukraine at the legislative level, namely the Methodology for assessing financial and economic security based on the "Methodological recommendations for calculating the level of economic security of Ukraine", approved by the order of the Ministry of Economic Development and Trade of Ukraine (Ministry of Economy) from October 29, 2013 No. 1277 [9]. The National Security Strategy was adopted as part of the Sustainable Development Strategy "Ukraine - 2020". The analysis of the intermediate results of its economic part was carried out by G. Sytnyk in the work "Preliminary assessment of the implementation of the economic part of the National Security Strategy of Ukraine" [10]. However, despite the intensification, the methodological bases for determining the level of financial and economic security need to be modernized due to the lack of a comprehensive approach in the domestic practice of assessing the country's financial security.

Since financial security is a complex multifaceted category characterized by close interdependence and interaction of its components, inaccuracies and errors in the assessment of some indicators immediately affect the correctness of the determination of other indicators and the entire system in general. Therefore, despite the large number of scientific works in the field of assessing the level of financial security of the country, the question of its mathematically significant and qualitative forecast for the following periods remains open today and requires further research.

**Research methodology.** The methodology for assessing financial and economic security is based on a quantitative study of indicators that characterize the state of the country's economic security and, accordingly, financial security as its priority component.

The integral index of economic security consists of nine weighted average sub-indices - components of economic security, including financial security represented by six financial sectors. The calculation of integral indices is carried out on the basis of the evaluation of indicators. The definition of integral assessment as financial security is carried out in a certain order. To assess the

overall level of financial security, one should first assess the security of its components, which include a number of indicators. Thus, in accordance with the approved Methodology, it is advisable to use a system of indicators with the definition of their acceptable limit levels. In order to ensure a uniform information orientation, the indicators are divided into three types, namely: stimulators, mixed-type indicators and destimulators.

The connection between the integral index and indicators-stimulators is direct, between destimulators - inverse. Therefore, for destimulatory indicators, the lower and upper threshold (optimal) values change places. The range of characteristic (threshold) values of each indicator is given in Methodological recommendations [9] and is divided into five intervals: critical, dangerous, unsatisfactory, satisfactory, optimal value.

The next stage of the calculation is the normalization of integral indicators by measuring them on a scale from 0 to 1 or as a percentage from 0 to 100%. Thus, the obtained normalized value of the indicator shows the degree of approximation to the optimal value of 1.

It is important that the determination of the integral indicator of the security level of each sector and the overall value of the country's security is carried out using weighting factors that determine the degree of contribution of each indicator to the integral security index and are determined by expert evaluation. Financial security has the largest weight coefficient (0.1294) among all other components of economic security.

Hence, the integral index of economic security is determined hierarchically:

- at the lower level: indices for separate areas of the economy (in particular, financial security);
- on the top: generalized index.

The calculation of the integral indicator for each security area is carried out according to the following formula:

$$I_m = \sum d_i y_i \quad (1.1)$$

where  $I_m$  is indicator/subindex of the  $m^{\text{th}}$  sphere of economic security, where  $m = (1, 2, 3...)$ ;

$d_i$  is weighting factor that determines the degree of contribution of the  $i^{\text{th}}$  indicator to the integral index of the component of economic security;

$y_i$  is normalized estimate of the  $i^{\text{th}}$  indicator.

The integral security indicator of Ukraine (I) is calculated according to the formula:

$$I = \sum d_m I_m \quad (1.2)$$



where  $d_m$  is weighting factor that determines the degree of contribution of the indicator/subindex of the  $m^{\text{th}}$  sphere of economic security to the integral security index of Ukraine;

$I_m$  is indicator/subindex of the  $m^{\text{th}}$  security area, where  $m = (1, 2, 3...)$ .

The system of indicator indicators allows to signal danger in advance and take measures to prevent it. It is the reliable determination of the level of state security that determines the need to ensure the appropriate level of stability of the financial system in relation to internal and external threats and to create the necessary conditions for achieving its efficiency and integrity of functioning.

**Presentation of the research material.** Using the requirements of the Methodology of the Ministry of Economy and taking into account the relevant weighting factors, financial security is assessed as a component of the country's economic security.

The financial security of the banking system is designed to ensure the use of the country's resources, create conditions for the realization of the economic interests of banks, identify and prevent threats to the banking system (external and internal), and create conditions for its effective functioning. The results of the assessment of the first financial sector, namely banking security, are presented in the Table 1 (input and normalized data for the sector), and Table 2 – indicators for assessing the level of security of the banking sector.

Table 1

**The value of input and normalized data of the banking security sector for 2013-2021**

Indicators of the banking security sector	Year								
	2013	2014	2015	2016	2017	2018	2019	2020	2021
Share of overdue debt on loans in the total amount of loans granted by banks to Ukraine's residents, %	20.31	34.53	71.69	82.69	104.27	102.73	86.49	71.67	46.49
	0.07	0.04	0.02	0.02	0.03	0.03	0.03	0.05	0.04
Ratio of bank loans and deposits in foreign currency, %	124.09	152.66	168.65	134.50	109.36	117.04	83.50	68.49	61.96
	0.86	0.47	0.31	0.71	1.00	0.93	0.74	0.38	0.32
The share of foreign capital in the banks' authorized capital, %	39.5	34	32.5	39.6	46.4	48.1	46.7	44.6	46.5
	0.42	0.64	0.70	0.42	0.34	0.32	0.33	0.35	0.34
Ratio of long-term (more than one year) loans and deposits, times	2.02	3.28	4.09	5.84	4.60	5.41	4.85	3.33	3.52
	0.53	0.13	0.15	0.10	0.13	0.11	0.12	0.18	0.17



*Table 1 (continued)*

Return on bank assets (ROA), %	0.11	-4.02	-5.32	-12.69	-1.99	1.64	3.90	2.18	3.77
	<i>0.64</i>	<i>0.80</i>	<i>1.06</i>	<i>2.54</i>	<i>0.40</i>	<i>0.94</i>	<i>0.18</i>	<i>0.73</i>	<i>0.19</i>
Ratio of liquid assets to short-term liabilities, %	0.89	0.86	0.93	0.92	0.98	0.94	0.94	0.87	0.89
	<i>0.85</i>	<i>0.82</i>	<i>0.90</i>	<i>0.89</i>	<i>0.98</i>	<i>0.91</i>	<i>0.92</i>	<i>0.82</i>	<i>0.86</i>
The share of assets of the five largest banks in the total assets of the banking system, %	40.01	43.41	53.62	55.73	87.85	90.04	86.45	58.66	34.41
	<i>0.60</i>	<i>0.53</i>	<i>0.33</i>	<i>0.29</i>	<i>0.14</i>	<i>0.13</i>	<i>0.14</i>	<i>0.23</i>	<i>0.82</i>

*Source:* calculated by author based on data [11-17]

Today, Ukrainian banks have certain problems and there are threats to their sustainable activity. Based on the study of the essential characteristics of the banking sector, an excess of credit operations over deposit operations in foreign currency was found, which affects currency risks.

The ratio of long-term loans to deposits also negatively affects the overall level of security. According to the Methodology, the optimal value of this indicator is 1, the critical value is 3. Since 2014, the indicator even exceeds the critical level.

Since 2014, a negative profitability, i.e. unprofitability of bank assets, has been observed in Ukraine. The main share of active operations for Ukrainian banks is the provision of loans, so in 2016, for every UAH 1 of assets, there was a loss of UAH 12.69. However, in 2017, the situation improved somewhat and UAH 1 invested in assets resulted in a loss of UAH 1.99. In 2021, this indicator shows profitability in the amount of UAH 3.77 per investment in assets.

The value of the indicator of the ratio of liquid assets to short-term liabilities is defined as positive. The indicator shows the minimum required volume of assets to ensure the fulfillment of obligations within one year. On average, over the entire analyzed period, this indicator approaches unity and is characterized as the optimal level of influence on the overall indicator of financial security.

*Table 2*

**Assessment of the level of banking security of Ukraine in 2013-2021**

1. Bank security	Years								
	2013	2014	2015	2016	2017	2018	2019	2020	2021
Share of overdue debt on loans in total amount of loans granted by banks to Ukraine's residents, %	0.010	0.006	0.003	0.003	0.004	0.004	0.004	0.005	0.007
Ratio of bank loans and deposits in foreign currency, %	0.122	0.067	0.045	0.101	0.143	0.132	0.105	0.055	0.046

*Table 2 (continued)*

Share of foreign capital in banks' authorized capital, %	0.058	0.088	0.096	0.057	0.046	0.044	0.046	0.049	0.046
Ratio of long-term (more than one year) loans and deposits	0.078	0.019	0.022	0.015	0.019	0.016	0.018	0.027	0.025
Profitability of bank assets (ROA), %	0.096	0.120	0.159	0.380	0.059	0.141	0.027	0.109	0.028
Ratio of liquid assets to short-term liabilities, %	0.116	0.111	0.123	0.122	0.133	0.124	0.126	0.112	0.116
Share of assets of five largest banks in total assets of banking system, %	0.081	0.072	0.044	0.039	0.018	0.018	0.019	0.031	0.111
Security level, %	56	48	49	72	42	48	35	39	38

*Source:* calculated by author based on data [11-17]

One of the instruments of anti-crisis regulation of the NBU in 2014 (after the financial crisis of 2013) was a moratorium on the withdrawal of deposits and the granting of loans in banks at the first signs of public panic and mass withdrawals of deposits from banks. The massive outflow of funds from deposit accounts testified to a decline in confidence in the banking system. Among domestic banking institutions, all state banks are members of the Deposit Guarantee Fund. Today, for the period of martial law, all banks are guaranteed 100%, and three months after the lifting of martial law, the minimum guarantee amount for all banks will be UAH 600,000.

During 2014, a very negative trend in reducing the equity capital of domestic banks was manifested. This affected the general indicator of banking security of Ukraine, which in 2014 and 2015 is decreasing.

In 2014, banks' solvency standards were significantly reduced. As a result, stress testing was conducted for 35 of the country's largest banks, where the need for recapitalization was identified. Resolution No. 723 of the Board of the National Bank of Ukraine dated November 17, 2014 increased the normative value of the minimum size of the bank's regulatory capital from UAH 120 million to UAH 500 million. Thus, a large number of insolvent banks left the market, the system was cleaned. Since 2016, the security situation in the banking sector has improved significantly.

However, the risks caused by a number of economic, political and social problems in the country led to a decrease in the level of security of the banking sector in the following periods. In 2020, the National Bank of Ukraine applied one of the influence measures, lowering the requirements for the minimum regulatory capital of banks from UAH 500 million to UAH 200 million. In 2021, the overall security level of the banking sector was 38%. To increase the level of banking security, the National Bank of Ukraine should pay attention to overdue loans, long-term loans and deposits.



The main threats to the banking sector are caused by significant dollarization of the economy, a high level of inflation and devaluation of the hryvnia, and a significant level of the shadow economy in the country. The social factors of influence include the low solvency of the population, mistrust of the banking system and the monetary policy of the state, and the increase in the number of unemployed Ukrainians. A serious imbalance for the banking system is a high share of non-performing loans.

Ensuring the financial security of the banking system of Ukraine is a complex and multifaceted problem that requires constant attention, and at the current stage there is a need to develop a single integrated concept of financial security and protection.

The calculated values of indicators of the state of the next component of financial security - the security of the non-banking financial market - are shown in Tables 3, 4.

*Table 3*

**The value of input and normalized data of the sector of the non-banking financial market for 2013-2021**

Indicators of the non-banking financial sector	Years								
	2013	2014	2015	2016	2017	2018	2019	2020	2021
Insurance penetration level, %	1.96	1.69	1.50	1.48	1.46	1.39	1.33	1.07	0.70
	0.39	0.34	0.30	0.30	0.29	0.28	0.27	0.21	0.14
Capitalization level of listed companies, %	19.66	21.71	2.9	0.82	0.55	0.22	0.04	0.04	0.13
	0.26	0.29	0.04	0.01	0.01	0.00	0.00	0.00	0.00
Volatility level of the FSTS index), -10%	3.01	3.87	2.41	2.65	3.15	5.59	5.10	4.99	5.23
	0.40	0.23	0.44	0.34	0.37	0.14	0.16	0.16	0.15
Share of insurance premium income of the three largest insurance companies (except life insurance), %	10.50	14.35	13.62	17.46	19.90	13.84	10.75	7.64	4.80
	0.95	0.64	0.69	0.50	0.40	0.65	0.77	1	1

Source: calculated by author based on data [18–21].

In accordance with the Methodological recommendations for assessing the level of economic security, the indicators characterizing the security of the non-banking financial market include the indicators of the insurance and stock markets. The study showed that this component of security is characterized by a low level of insurance penetration, which for the entire analyzed period is slightly more than one (with the optimal value of 8).

Stock market indicators are far from optimal. Thus, the stock market has seen a significant reduction in the level of capitalization of listed companies since 2015. The reduction of this indicator is connected with the introduction of new rules for listing and delisting of securities effective from January 1, 2016, because in August 2015 the National Commission on Securities and Stock Market approved changes to "Regulations on the functioning of stock exchanges", which significantly increased the requirements for issuers to be listed on organized auctions.





The main indicator illustrating trends in the development of the securities market of Ukraine, recognized not only within our country, but also abroad, is the index of the First Stock Trading System (FSTS), which is calculated daily based on the results of trading on the basis of the weighted average prices of shares of the "index basket" in relation to the base period. However, there are not many stocks in the Ukrainian FSTS index basket, and therefore the volume of trades for them is also small compared to global trends.

The indicator of the share of insurance premium income of the three largest insurance companies in the total amount of insurance premium income for the period from 2013 to 2019 corresponds to the threshold values (10-30). This indicates that the largest insurance companies are gaining momentum and expanding the potential insurance field in the country, increasing the total amount of insurance premiums received. However, in the last two periods, this indicator decreased significantly, in 2021 it was 4.8%.

*Table 4*

**Assessment of security level in Ukraine's non-banking financial sector  
in 2013-2021**

<b>2. Non-bank financial sector security</b>	<b>Years</b>								
	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>
Insurance penetration level, %	0.137	0.118	0.105	0.103	0.102	0.097	0.093	0.075	0.049
Capitalization level of listed companies, %	0.086	0.095	0.013	0.004	0.002	0.001	0.000	0.000	0.001
Volatility level of the FSTS index), -10%	0.051	0.029	0.056	0.043	0.047	0.018	0.020	0.020	0.020
The share of insurance premium income of the three largest insurance companies (except life insurance), %	0.183	0.124	0.134	0.097	0.078	0.125	0.149	0.193	0.193
Security level, %	46	37	31	25	23	24	26	29	26

*Source:* calculated by author based on data [18-21]

The overall level of security of the non-banking financial market of Ukraine shows the highest value in 2013. Then the situation worsens, in 2021 the security indicator is 26%, i.e. the market of non-banking financial services is only one-third protected from external factors and financial threats. This situation is primarily caused by the fact that the insurance and stock markets in Ukraine are underdeveloped. The share of the stock market in the total volume of trades on the securities market is quite low, and the volumes of the Ukrainian stock market on a global scale remain insignificant.

The problems of the insurance market are rooted in the shortcomings of state regulation of non-bank financial intermediaries in Ukraine. The main segments of the insurance market in Ukraine remain mandatory types of insurance, in particular, car insurance, medical insurance, and passenger insurance. Voluntary types of insurance - due to distrust - are not in demand among consumers. Under



such a situation, the insurance market of Ukraine cannot fully perform its economic functions.

The results of the assessment of the state of banking security and the security of the non-banking financial market in general signal a decrease in the level of security over the analyzed period, although banking security is still characterized by more stable dynamics and a higher percentage of security.

The third component is represented by the sector related to the problem of public debt, therefore, in the system of financial security, a special place is given to the debt security of the state or the debt stability of the national economy.

The state's debt security reflects the state (level) of state debt, at which the financial system and the national economy in general are able to function stably in the country, ensuring at the same time the effective use of borrowed funds in the national interests, the timely payment of the debt, the prevention of a critical accumulation of the debt burden, the preservation of financial sovereignty, economic and political independence of the state.

Indicators of the state and results of the assessment of Ukraine's debt security for the period 2013-2021 are presented in Tables 5 and 6.

*Table 5*

**The values of input and normalized data of the debt security sector for 2013-2021**

Indicators of the debt security sector	Years								
	2013	2014	2015	2016	2017	2018	2019	2020	2021
Ratio of state and state-guaranteed debt to GDP, %	39.87	69.35	79.06	80.97	71.84	60.91	50.24	60.44	48.94
	0.60	0.17	0.15	0.15	0.17	0.20	0.24	0.20	0.62
Ratio of gross external debt to GDP, %	77.48	94.64	130.40	121.70	104.02	83.29	73.83	83.80	64.58
	0.18	0.15	0.11	0.12	0.13	0.17	0.19	0.17	0.31
Average weighted yield of domestic treasury bonds on the primary market, %	14.19	13.44	13.07	9.16	10.47	17.79	16.93	10.2	11.34
	0.16	0.16	0.17	0.38	0.25	0.12	0.13	0.28	0.19
Ratio of official forex reserves to gross foreign debt, %	14.37	5.96	11.20	13.69	16.13	18.15	20.78	23.18	23.85
	0.14	0.06	0.11	0.14	0.16	0.18	0.21	0.24	0.25

*Source:* calculated by author based on data [21-26]

The calculation of indicators of Ukraine's debt security proves a certain level of internal and external debt, taking into account the cost of servicing it and the efficiency of using internal and external borrowings. The dynamics of the ratio of the total volume of state and state-guaranteed debt to the GDP of Ukraine demonstrates the deterioration of Ukraine's debt security. After 2013, this indicator shows an upward trend in subsequent periods and exceeds the limit



values (optimal - 20%, critical - 60%). The ratio of the volume of state and state-guaranteed debt to GDP as of 2021 was 48.94%.

Gross external debt in relation to GDP in 2021 was 64.58% (optimal value - 40%, critical - 70%). The weighted average yield of OVDP on the primary market in the last period was 11.34%. In general, it can be noted that this indicator does not exceed the critical value (4-11%) in 2016-2017 and 2019. Over the past nine years, the indicator of the ratio of the volume of official international reserves to the volume of gross foreign debt has increased by 9.48%. However, the large value of the gross external debt remains a negative fact.

The first three indicators of the state of debt security in the system of financial security of Ukraine are disincentives, so the decrease in the level of debt security of Ukraine is actually a consequence of an increase in their values.

*Table 6***Assessment of the level of debt security of Ukraine in 2013-2021**

3. Debt security	Years								
	2013	2014	2015	2016	2017	2018	2019	2020	2021
Ratio of state and state-guaranteed debt to GDP, %	0.132	0.038	0.033	0.033	0.037	0.043	0.052	0.044	0.136
Ratio of gross external debt to GDP, %	0.040	0.033	0.024	0.025	0.030	0.037	0.042	0.037	0.068
Average weighted yield of domestic treasury bonds on the primary market, %	0.028	0.030	0.031	0.070	0.046	0.023	0.024	0.051	0.036
Ratio of official forex reserves to gross foreign debt, %	0.028	0.012	0.022	0.027	0.032	0.036	0.042	0.048	0.049
Security level, %	23	11	11	16	14	14	16	18	29

*Source:* calculated by author based on data [21-26]

According to the results of calculation, debt security is not just in a threatening state, but in a pre-crisis state. An increase is observed in 2021, but it is insignificant. One of the most important factors affecting the decrease in the level of financial security of this sector in recent years is the increase in the level of public debt in the country.

The next component of the financial security of the state is the budgetary sphere, which is an indicator of the state of ensuring the solvency of public finances and the effectiveness of the implementation of the functions of state authorities (Tables 7, 8).

The ratio of the state budget deficit to GDP as a basis for researching the state of budget security in the financial security system of Ukraine shows that during the analyzed period, although the indicator is in the range of threshold limits (from -6% to 10%), it acquires minimally critical values. During the analyzed period, the indicator of the ratio of the state budget deficit to GDP had the greatest value in 2017, making -1.61% (optimal value).



The deficit of budgetary and extra-budgetary funds of the sector of state administration to GDP is also within the threshold values (from -3% to 5%). Since 2015, a downward trend has been observed, but in 2020, the indicator increases again with a value of 2.99%. In 2021, the indicator decreased slightly - to 1.01%. A tendency to increase the level of redistribution of GDP due to the combined budget is also recorded.

*Table 7*

**The value of input and normalized data of the budget security sector for 2013-2021**

Indicator for budget security sector	Years								
	2013	2014	2015	2016	2017	2018	2019	2020	2021
Ratio of deficit/surplus of state budget to GDP, %	-4.42	-4.92	-2.27	-2.94	-1.61	-1.66	-1.96	-5.14	-3.63
	0.52	0.42	0.95	0.81	1.00	1.00	1.00	0.37	0.67
Deficit/surplus of budgetary and extra-budgetary funds of general government sector, % of GDP	3.10	3.54	-0.50	1.26	-0.38	0.24	0.96	2.99	1.01
	0.39	0.35	0.90	0.75	0.92	0.95	0.81	0.40	0.80
GDP redistribution via consolidated budget, %	30.22	28.74	32.79	32.84	34.11	33.26	32.43	32.61	30.45
	0.79	0.93	0.61	0.61	0.49	0.57	0.64	0.63	0.77
Ratio of aggregate payments for servicing and repayment of state debt to state budget revenues, %	22.49	33.34	18.14	32.41	30.39	37.80	39.29	46.95	46.02
	0.14	0.10	0.18	0.10	0.11	0.08	0.08	0.07	0.07

*Source:* calculated by author based on data [27-32].

The overall level of budget security was also influenced by the last disincentive indicator, namely the ratio of the volume of aggregate payments for servicing and repayment of the state debt to state budget revenues. On average, over the entire analyzed period, the indicator tends to increase, but since 2014, it has decreased, reaching 18.14% in 2015 (critical values zone).

*Table 8*

**Assessment of the level of budgetary security of Ukraine in 2013-2021**

4. Budgetary security	Years								
	2013	2014	2015	2016	2017	2018	2019	2020	2021
Ratio of state budget deficit/surplus. to GDP, %	0.138	0.111	0.253	0.217	0.267	0.267	0.267	0.099	0.180
Deficit/surplus of budgetary and extra-budgetary funds of general government sector, % of GDP	0.097	0.086	0.223	0.186	0.229	0.236	0.201	0.100	0.198
GDP redistribution via consolidated budget, %	0.173	0.204	0.135	0.134	0.108	0.126	0.141	0.138	0.170
Ratio of aggregate payments for servicing and repayment of state debt to state budget revenues, %	0.038	0.025	0.047	0.026	0.028	0.022	0.022	0.018	0.018
Security level, %	45	43	66	56	63	65	63	35	57

*Source:* calculated by author based on data [27-32]



The assessment of the budgetary security of Ukraine shows a discrepancy between the income and expenditure balance of the state and local budgets, the inefficiency of the state's use of budget funds. The main problems in this context are the non-target nature of the use of budget funds, their inefficient distribution, non-target use of funds and corruption, ineffectiveness of the state control mechanism.

One of the important indicators of the financial security of the state is the stability of the exchange market. The dynamics of exchange security indicators in Ukraine and the results of determining the integral exchange security index are given in the Tables 9, 10.

*Table 9*

**The value of input and normalized data of the exchange security sector for 2013-2021**

Indicator of the exchange security sector	Years								
	2013	2014	2015	2016	2017	2018	2019	2020	2021
Index of change in official exchange rate of national currency against US dollar, period average	100.02	148.71	183.77	116.97	104.09	102.27	95.02	104.30	101.22
	<i>1.00</i>	<i>0.17</i>	<i>0.14</i>	<i>0.34</i>	<i>0.80</i>	<i>1.00</i>	<i>0.60</i>	<i>0.97</i>	<i>1</i>
Ukraine's gross forex reserves, months of imports	2.26	1.17	3.06	3.19	3.21	3.08	3.47	4.88	3.60
	<i>0.51</i>	<i>0.16</i>	<i>0.81</i>	<i>0.82</i>	<i>0.82</i>	<i>0.81</i>	<i>0.85</i>	<i>0.99</i>	<i>0.86</i>
Share of foreign currency loans in total loans granted, million USD	51.10	86.26	126.27	97.76	78.17	74.78	58.36	57.94	40.64
	<i>0.20</i>	<i>0.12</i>	<i>0.08</i>	<i>0.10</i>	<i>0.13</i>	<i>0.13</i>	<i>0.17</i>	<i>0.17</i>	<i>0.51</i>
Balance of purchase/sale of foreign currency by individuals	4.10	4.71	-34.97	-63.24	-56.63	-39.89	-4.89	-28.79	-34.11
	<i>0.84</i>	<i>0.81</i>	<i>0.00</i>	<i>0.00</i>	<i>0.00</i>	<i>0.00</i>	<i>0.43</i>	<i>0.00</i>	<i>0.00</i>
Money supply dollarization, %	27.24	32.16	33.85	32.87	31.90	29.25	28.70	26.86	22.97
	<i>0.38</i>	<i>0.19</i>	<i>0.18</i>	<i>0.18</i>	<i>0.19</i>	<i>0.25</i>	<i>0.29</i>	<i>0.41</i>	<i>0.65</i>

Source: calculated by author based on data [11, 33, 34]

*Table 10*

**Assessment of the level of exchange security of Ukraine in 2013-2021**

5. Exchange security	Years								
	2013	2014	2015	2016	2017	2018	2019	2020	2021
Index of change in official exchange rate of national currency to USD, period average	0.178	0.031	0.025	0.061	0.141	0.178	0.107	0.172	0.178
Ukraine's gross forex reserves, months of imports	0.091	0.028	0.145	0.148	0.148	0.146	0.153	0.178	0.155
Share of foreign currency loans in total loans granted, %	0.029	0.017	0.012	0.015	0.019	0.020	0.026	0.026	0.076
Balance of purchase/sale of foreign currency by individuals, million USD	0.139	0.134	0.000	0.000	0.000	0.000	0.071	0.000	0.000
Money supply dollarization, %	0.068	0.033	0.031	0.032	0.033	0.044	0.051	0.072	0.115
Security level, %	50	24	21	26	34	39	41	45	52

Source: calculated by the author based on data [11, 33, 34]



Analysis of exchange security of Ukraine shows that its condition is not optimal either, there are certain imbalances and problems. Not the last role in ensuring the stability of the foreign exchange market is played by the exchange rate, therefore special attention is paid to its change. Thus, the index of changes in the official exchange rate of the hryvnia to the US dollar in 2014-2015 exceeds the critical threshold (130). In the country, the price of the hryvnia relative to the world currency is observed, and accordingly, its purchasing power on the foreign market decreases during trade in goods and services and in the process of movement of capital and loans.

Gross forex reserves (whose optimal value is defined in the Methodological Recommendations at the level of 5) for the entire period show insignificant volumes of foreign economic turnover and capital flows of Ukraine. The share of loans in foreign currency in the period 2013–2019 exceeded the critical level (50). There was some improvement in 2021, but it was mostly due to the currency difference.

The balance of purchase and sale of foreign currency by the population has a downward trend. In countries with a developed economy, the amounts of buying and selling foreign currency should be the same, but in Ukraine there is a sharp deviation, first in favor of selling foreign currency, and then in favor of the purchase of foreign currency by banks from the population and leads to a high level of dollarization of the money supply in the country. The bulk of savings was transformed into currency in 2013-2014, however, since 2015, households have been selling currency due to insufficient income to cover their expenses. This trend indicates a significant level of use of foreign currency as a means of payment on the territory of Ukraine. The level of dollarization of the money supply has grown to a critical (30%) level. The greater the share of foreign currency in the money circulation of the country, the more dangerous currency fluctuations become for the economy.

When considering exchange security, it is necessary to mention cryptocurrency, given that, according to the analytical company Chainalysis, Ukraine ranked fourth in 2021 according to the index of the spread of cryptocurrency, and also in view of the prospects arising in connection with the adoption in February 2022 of the Law of Ukraine "On Virtual Assets" and significant risks associated with its use.

The highest level of security in the foreign exchange sector was recorded in 2013 - 50%, in the following years we observe a decrease (to 52% in 2021). The value of the integral indicator of exchange security for Ukraine decreased by 2 points over the entire period under study, however, in 2014-2016, the exchange security was twice lower.

The last segment of the national financial security is the indicators of Ukraine's money market. According to the Methodological recommendations for



assessing the level of financial security, among the indicators characterizing monetary security, one should distinguish the indicators calculated and listed in Table 11. The estimated results on this segment are presented in Table 12.

Table 11

**The values of input and normalized data of the monetary security sector for 2013-2021**

Monetary security indicators	Years								
	2013	2014	2015	2016	2017	2018	2019	2020	2021
Share of cash outside banks in total money supply (M0/M3), %	26.16	29.57	28.44	28.51	27.51	28.46	26.72	27.90	28.05
	0.71	0.43	0.53	0.52	0.60	0.52	0.66	0.57	0.56
Difference between interest rates on loans provided by deposit corporations and deposits raised by deposit institutions (except NBU), in reporting period, <i>pp</i>	6.29	8.91	10.10	6.79	6.97	6.29	5.41	5.51	5.84
	0.58	0.41	0.29	0.55	0.54	0.58	0.72	0.70	0.63
Weighted average interest rate on loans in national currency to CPI, <i>pp</i>	16.13	-10.88	-18.47	5.94	2.26	9.93	16.58	8.04	3.31
	0.19	0.31	0.53	0.91	0.93	0.51	0.18	0.70	1.00
Share of consumer loans granted to households in total loans, %	15.08	13.24	10.68	10.17	12.01	14.13	17.87	18.00	20.51
	0.59	0.72	0.89	0.92	0.80	0.66	0.41	0.40	0.23
Share of long-term loans in total loans granted, %	77.18	63.24	52.09	62.67	71.48	70.51	75.48	73.98	78.02
	1.00	1.00	0.84	1.00	1.00	1.00	1.00	1.00	1.00

Source: calculated by author based on data [11, 14, 33, 35]

The optimal value of the specific weight of cash outside banks in total money supply should not exceed 20%. For 2013–2021, the indicator ranges from 26.16 to 28.05%. That is, the money supply in Ukraine is characterized by high rates of growth and an excessively large share of cash, so that almost a third of funds circulate outside banks and are not controlled by the banking system, which is a negative trend.

In 2021, the indicator of the difference between interest rates on loans granted by depository corporations in the reporting period and deposits raised by depository institutions was 5.84 percentage points, which indicates a significant increase in the margin. The level of the weighted average interest rate on loans in the national currency relative to the consumer price index only had an optimal value (3–5) in 2016–2017.

In recent years, the process of lending to households in the national currency has gained momentum. The share of consumer loans granted to households in the total structure of loans granted to residents is a stimulating indicator of the country's monetary security, as it has a direct connection with the integral indicator. The Calculation Method defines the optimal value of the indicator at the level of 5–9%. As this indicator increases, the overall level of financial security increases, so exceeding the threshold can be considered positive.

The share of long-term loans in total granted loans characterizes the banks' intentions regarding long-term investments. In almost all periods, the indicator exceeds the optimal level (60%).



Table 12

Assessment of the level of Ukraine's monetary security in 2013-2021

6. Monetary security	Years								
	2013	2014	2015	2016	2017	2018	2019	2020	2021
Share of cash outside banks in total money supply (M0/M3), %	0.11	0.07	0.08	0.08	0.10	0.08	0.11	0.09	0.09
Difference between interest rates on loans granted by deposit corporations and deposits raised by deposit institutions (except the NBU), in reporting period, <i>pp</i>	0.10	0.07	0.05	0.09	0.09	0.10	0.12	0.12	0.11
Weighted average interest rate on loans in national currency, relative to consumer price index, <i>pp</i>	0.03	0.05	0.09	0.16	0.16	0.09	0.03	0.12	0.17
Share of consumer loans granted to households in total loans, %	0.09	0.11	0.14	0.14	0.12	0.10	0.06	0.06	0.04
Share of long-term loans in total loans granted, %	0.17	0.17	0.14	0.17	0.17	0.17	0.17	0.17	0.17
Security level, %	51	47	50	64	64	54	49	56	57

Source: calculated by author based on data [11, 14, 33, 35].

The security level of the monetary sector shows the highest value in 2016-2017 - 64%. In general, the security in this sector is better than that in the non-bank market, and the debt and currency components.

The study of the level of the main components of Ukraine's financial security (Fig. 1) suggests that these segments of the financial market have certain imbalances and difficulties, hence their stabilization remains an urgent issue of financial and economic security.

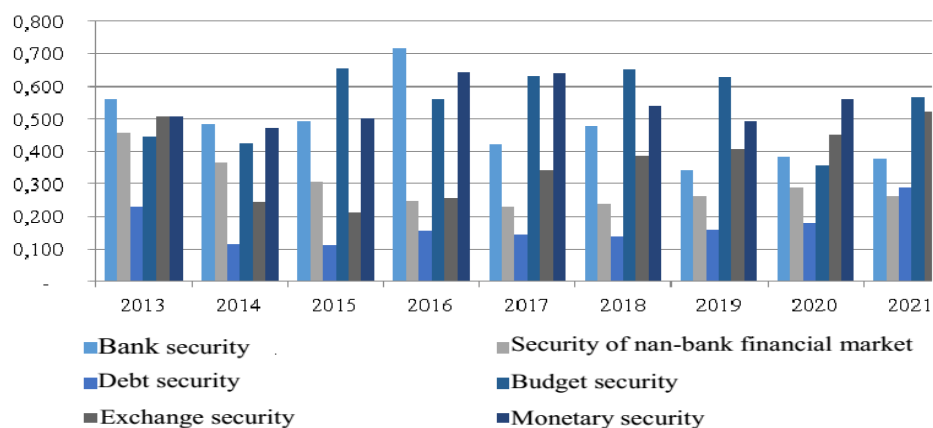


Fig. 1. Dynamics of changes in security levels of Ukraine's financial sectors in 2013-2021

Source: compiled by author based on preliminary calculations

Based on the calculations, the author defines the general integral indicator of Ukraine's financial security (Table 13), which is calculated taking into account the



sub-indices of the main components and weighting factors established by the Methodology of the Ministry of Economy.

Table 13

**Integral indicators of the general level of Ukraine’s financial security and its components in 2013-2021**

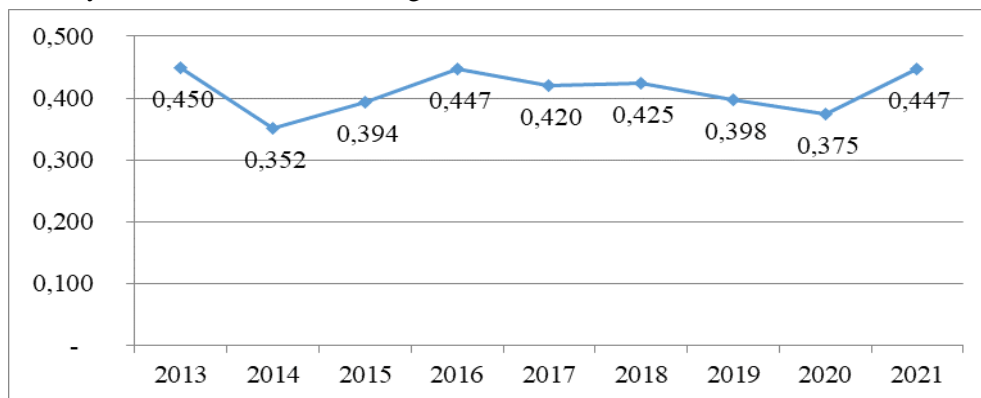
Security sector	Year								
	2013	2014	2015	2016	2017	2018	2019	2020	2021
Bank security	0.097	0.083	0.085	0.123	0.073	0.082	0.059	0.067	0.065
Security of non-banking financial market	0.049	0.039	0.033	0.026	0.024	0.026	0.028	0.031	0.028
Debt security	0.040	0.020	0.019	0.027	0.025	0.024	0.028	0.031	0.051
Budget security	0.090	0.086	0.133	0.114	0.128	0.132	0.127	0.072	0.115
Exchange security	0.085	0.041	0.036	0.043	0.058	0.065	0.069	0.076	0.088
Monetary security	0.089	0.083	0.088	0.113	0.112	0.095	0.086	0.099	0.101
<b>General level of financial security</b>	<b>0.450</b>	<b>0.352</b>	<b>0.394</b>	<b>0.447</b>	<b>0.420</b>	<b>0.424</b>	<b>0.398</b>	<b>0.375</b>	<b>0.447</b>

Source: calculated by author based on preliminary data

The value of the banking security sub-index is characterized as unsatisfactory. The security of the non-banking financial market is decreasing to a critical level. Debt and budget security is at a dangerous level throughout the analyzed period. Exchange security reaches a dangerous level that persists until the end of the analyzed period. Monetary security is unsatisfactory. Thus, none of the segments has a satisfactory or acceptable level of safety.

The results show that for the whole analyzed period, the overall value of Ukraine's financial security assessment was at a level of less than 50%. The highest level was recorded in 2016 and 2021 - 0.447, the lowest in 2014 - 0.352.

The dynamics of changes in the generalizing integral indicator of financial security of Ukraine is shown in Fig. 2.



**Fig. 2. Dynamics of change in the integral indicator of Ukraine’s financial security for the period 2013-2021**

Source: compiled by author based on preliminary data



## **An assessment of Ukraine's financial security...**

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Less than half of Ukraine's economy (in 2013 - 45%, in 2016 and 2021 - 44.7%), and in some periods only a third (in 2014 - 35.2%) is protected from financial threats, while the security of the financial sector is ensured at a minimum level. The greatest threats were identified in the field of foreign debt, the use of budget funds, the expensive bank loans and the significant dollarization of the economy.

Ukraine's financial sector is not properly protected from financial threats. The economy is not sufficiently resistant to financial shocks and imbalances. However, having conducted a research solely with one method, one cannot claim that the obtained result is a final and valid reflection of the situation in the financial sector.

In the course of calculation, it was found that the official statistical reporting is adjusted from year to year, and accordingly, the assessment of security levels becomes more difficult. With the update of the data from the newly presented report, recalculation of the corresponding year according in some indicators shows a discrepancy with the results of previous year. Therefore, calculations based on input data from domestic sources do not properly reflect the real financial security.

One peculiarity of the Methodology is its focus, as a rule, on retrospective analysis, in the absence of any prospective financial forecast.

The evaluation mechanism is aimed at analyzing quantitative indicators and does not take into account non-financial information and its impact on the level of security of individual components and overall financial security. External factors play an important role in this aspect. Political confrontation, change of power, military aggression in the east of Ukraine in 2014 increased instability in the country. The impact on GDP, export-import figures, government spending, and domestic investment has greatly decreased. However, the Methodology of the Ministry of Economy does not reflect the specifics of the threats caused by these external factors.

The full-scale invasion of the Russian Federation into Ukraine on February 24, 2022 had a drastic effect on all sectors of the economy, in particular, in the context of national financial security. The military actions by the Russians caused the destruction of production facilities, transport, and infrastructure, and led to the loss of the ability to use land due to shelling and mining, and to the shutdown of enterprises, migration of labor resources, and unemployment.

The armed conflict had a negative impact on the spheres of financial security. The banking sector is not yet in a pre-crisis state, banks have demonstrated stability during war, but this relative stability can be qualified as a delay effect, since the banks have still not fully recognized the size of the lost loan portfolio.

In the budgetary sphere, there is an increase in the indicator of government expenditures per capita. This is due to the fact that since the beginning of the full-



scale military invasion, the expenditures on security and defense, repair and restoration of infrastructure, payments to the military and social assistance to internally displaced persons and victims all have been increasing.

Ukraine's debt security was most affected in terms of the indicator of external debt, which was caused by the outflow of foreign capital due to war risks, as well as the need for loans to cover the state budget deficit (for January-September 2022 it amounted to 493.4 billion UAH [36]), since the government funds are mostly spent on defense.

On the exchange market, the exchange rate of the national currency plays a significant role. The fixed rate regime established by the NBU does not correspond to the value of the real market rate. Reduced exports and direct foreign investments, the capital outflow, including that of bank capital, all lead to a deficit in the exchange market.

In addition, the dangerous situation forces the population to leave the country. According to UN data, as of September 30, 2022, a total of 7.5 million people had left Ukraine, while 4.1 million returned [37]. This is one of the biggest migration crises in Europe's history. Although the majority of Ukrainian migrants are women and children, such a migration has directly affected consumer and household spending, markedly reducing this country's monetary security.

### **Conclusions**

Based on the study of the characteristics of banking sector, a trend of change in Ukraine's domestic banking market has been revealed. Debt security in Ukraine is at a very low level (only 11% in 2014-2015) and is in a pre-crisis condition. In the budgetary sector, there is a marked discrepancy between the income and expenditure balance of state and local budgets, while the government inefficiently uses the budgetary resources. The level of exchange decreased during the analyzed period. The assessment of the state of monetary security in Ukraine shows an excessive specific weight of cash outside banks in the total amount of money supply.

The methodology for defining economic security and, within its framework, the national financial security, has a number of shortcomings and does not take into account the changed realities since its adoption in 2013. The current criteria for assessing financial security do not characterize the economy from different angles, the indicators do not take into account potential threats and do not include certain external factors. The shortcomings in the evaluation mechanism reduce the practical value of obtained results. Unfortunately, in Ukraine today this is the only developed method that allows defining the financial security in the country, and there are no analogues for checking or analyzing financial security by other methods.



Therefore, a proper direction to improve the mechanism may be the development of an alternative model based toolkit that would make it possible to assess the real level of security in this country's financial and economic sector.

To assess the national financial security, one can build a structural-logical multiplicative model, whose implementation involves the selection and calculation of a base for indicators grouped according to the following directions of influence:

- direct impact: total amount of debt (% of GNI), government and government-guaranteed debt (% of GNI), current account balance (% of GDP), subsidies and other transfers (% of expenditures), private sector lending (% of GDP), tax revenue (% of GDP), total national reserves in months of imports, dollarization level of money supply (%), direct foreign investment, net inflow (% of GDP), direct foreign investment, net outflow (% of GDP);

- indirect impact: consumer price index, inflation rate (%), unemployment (% of total labor force), interest rate spread (%), S&P global capital index (annual change), poverty ratio according to national poverty levels (% of population), business disclosure index (0 = minimum, 10 = maximum), GINI index, statistical indicator of potential, official exchange rate (UAH/USD), real interest rate (%).

The input indicators are selected from the database of indicators for international statistics of the World Bank, namely indicators of world development - from World Development Indicators [38], database on poverty and equity - Poverty and Equity [39], conducting business - Doing Business [40], jobs - World Bank Jobs [41], Global Financial Development [42]. This array of statistical information can be considered an unbiased and objective reflection of the real situation in the country, since the World Bank's analysis is based on actual results of the economic sector in each country.

The proposed selection of input indicators for the alternative model toolkit will make it possible to assess the real level of security of Ukraine's financial and economic sectors.

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## **ОЦІНКА ФІНАНСОВОЇ БЕЗПЕКИ УКРАЇНИ: СЕКТОРАЛЬНИЙ РОЗРІЗ ТА ЗАГАЛЬНИЙ РІВЕНЬ**

*Фінансова безпека характеризується здатністю держави забезпечити стійкість фінансово-економічного розвитку країни і передбачає безпеку різних видів економічної діяльності та сфер суспільного життя. У статті проведено оцінку захищеності складових фінансового сектора України та розраховано загальний рівень фінансової безпеки в державі.*

*Розглянуто сучасний механізм визначення рівня фінансової безпеки. На сьогодні в Україні чинна Методика визначення рівня фінансової безпеки, затверджена Міністерством економіки України на основі "Методичних рекомендацій щодо розрахунку рівня економічної безпеки України, що базується на кількісному дослідженні індикаторів, які характеризують стан економічної безпеки країни та, відповідно, фінансової безпеки як її пріоритетної складової.*

*Розраховано рівні: безпеки фінансових секторів, а саме банківського сектора, безпеки небанківського фінансового сектора, боргової, бюджетної, валютної та грошово-кредитної безпеки. Найбільш проблемним є борговий сектор, забезпеченість якого за аналізований період у середньому становить 16,9%. Загальний рівень фінансової безпеки має тенденцію до зниження, у 2021 р. його зафіксовано на рівні 44%. Економіка країни не захищена від фінансових загроз та дисбалансів.*

*Виділено ряд недоліків Методики: визначені нею показники розроблені у 2013 р. і не відображають реальну ситуацію в країні, методика спрямована на аналіз фінансових показників і не враховує нефінансову інформацію, зовнішні фактори, вплив на загальний рівень фінансової безпеки її окремих складових. Встановлено необхідність вдосконалення механізму оцінки безпеки держави та надано ряд пропозицій у цьому напрямі.*

**Ключові слова:** безпека, оцінка, індикатори, фінансовий сектор

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