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FINANCIAL RESILIENCE OF UKRAINE UNDER THE MARTIAL LAW

For Ukraine, which is under martial law, determining the level of financial resilience is of particular importance. Developing an adapted methodology for assessing financial resilience, one that takes into account macroeconomic, financial, fiscal, and foreign economic aspects, is essential for ensuring a comprehensive understanding of the country's financial capacity to withstand external shocks.

The analysis of macroeconomic indicators, such as GDP per capita, the GDP physical volume index, and gross fixed capital formation as a share of GDP, along with unemployment and inflation, provides an overview of the overall economic context. Financial aspects, including broad money, the PFTS index, banks' net margins, and return on assets and capital within the banking system, offer insights into the system's ability to withstand financial shocks. Fiscal indicators – such as state budget expenditures and revenues, budget deficit, and total public debt – are essential for understanding the state's financial resilience in managing budgetary resources. Foreign economic factors, including foreign trade, export and import dependence, gross external debt, and international reserves, assess the country's integration into the global economy and its reliance on international factors. Thus, the integration of these diverse aspects into a single methodology allows for a comprehensive assessment of Ukraine's financial resilience.

Accordingly, Ukraine's Integral index of Financial Resilience (IFR) was 60% in 2021 (sufficient level), but it dropped dropped to 40% in 2022 (medium level). In 2023, the IFR began to recover and reached 50% (medium), suggesting that Ukraine has started to adapt to the war conditions that contributed to the decline in financial resilience in 2022. Despite this recovery, the IFR has not yet returned to the 2021 level, signaling that Ukraine's economy is still impacted by factors limiting its

full recovery. The proven methodology for the integral assessment of the country's financial resilience, as demonstrated in Ukraine's case, is an essential analytical tool for developing strategic directions to strengthen the country's financial capacity to withstand future shocks.

Keywords: financial resilience, integrated assessment, macroeconomic indicators, fiscal indicators, financial indicators, indicators of foreign economic activity, shock influences

JEL classification*: E 60, E 69, H 60, H 56*

Для України, яка знаходиться в умовах воєнного стану, визначення рівня фінансової стійкості набуває особливого значення. Розробка адаптованої методики оцінки рівня фінансової стійкості, яка враховує макроекономічні, фінансові, фіскальні та зовнішньоекономічні аспекти, є необхідною для забезпечення комплексного розуміння щодо фінансової спроможності країни протидіяти шоковим впливам.

Аналіз макроекономічних показників, таких як ВВП на душу населення, індекс фізичного обсягу ВВП, частка валового нагромадження основного капіталу у ВВП, рівень безробіття та інфляція, дозволяє оцінити загальний економічний контекст. Аналіз фінансових аспектів, включаючи широку грошову масу, індекс ПФТС, чисту маржу банків, рентабельність активів та капіталу банківської системи дає уявлення про здатність системи витримувати фінансові шоки. Фіскальні індикатори, такі як видатки і доходи державного бюджету, бюджетний дефіцит, сукупний державний борг допомагають зрозуміти фінансову стійкість держави в управлінні бюджетними ресурсами. Зовнішньоекономічні аспекти, включаючи зовнішню торгівлю, рівень експортної та імпортної залежності, валовий зовнішній борг та міжнародні резерви, дозволяють оцінити рівень інтеграції країни в глобальну економіку і залежність від міжнародних факторів. Таким чином, інтеграція всіх цих аспектів в єдину методику дозволила комплексно оцінити рівень фінансової стійкості України.

Відповідно Integral index of financial resilience (IFR) України у 2021 році становив 60% (достатній рівень), у 2022 році IFR знизився до 40% (середній рівень). У 2023 році IFR почав відновлюватись та становив 50% (середній рівень), що свідчить про те, що Україна почала адаптуватися до умов війни, які призвели до зниження фінансової стійкості в 2022 році. Незважаючи на певне відновлення, IFR все ще не досяг рівня 2021 року, що вказує на те, що економіка України залишається під впливом факторів, які обмежують її повне відновлення. Апробована методики інтегральної оцінки фінансової стійкості країни на прикладі України є важливим аналітичним інструментом та дозволяє розробляти стратегічні напрями забезпечення фінансової спроможності країни протидіяти шоковим впливам.

Ключові слова: фінансова стійкість, інтегральна оцінка, макроекономічні показники, фіскальні показники, фінансові показники, показники зовнішньоекономічної діяльності, шокові впливи

JEL classification: ***E 60, E 69, H 60, H 56***

Introduction. The financial resilience of a country is its ability to avoid, withstand and recover from internal and external shocks, ensuring macroeconomic stability, efficient functioning of the financial system, state budget and development of foreign economic activity. In 2022, Ukraine faced unprecedented challenges due to Russia's full-scale invasion, which negatively affected all areas of the country's development. The hostilities caused significant destruction of productive capital and infrastructure, resulting in human casualties and social losses. The war resulted in a reduction in jobs and incomes, a decrease in purchasing power and the volume of accumulated assets.

Determining the level of financial resilience of a country is an important task, given its impact on all spheres of public life. The main challenge is to identify effective tools that can help assess the level of Ukraine's financial resilience and the process of ensuring it in the context of prolonged military operations. Martial law poses complex challenges, including increased risks to the financial system, lower budget revenues, rising inflationary pressures and public debt, and instability in financial markets and foreign

economic activity. In such circumstances, it is important to have a clear understanding of the country's financial resilience.

Developing a methodology for assessing the level of financial resilience that takes into account a set of macroeconomic, fiscal, financial and foreign economic indicators is a key condition for understanding the state's ability to respond effectively to shocks, especially during the war and in the post-war period. The appropriate methodology will help identify weaknesses in the country's financial capacity to effectively counteract the shocks of war.

Analysis of recent research and publications. The methodological tools for assessing the financial resilience of countries have been studied sporadically in the scientific community, with varying approaches to the set of indicators. In their study of Malaysia's financial resilience, Fazelina Hamid, Yiing Loke, and Phaik Chin use an approach that includes an analysis of financial knowledge, financial inclusion, and socio-demographic characteristics. The assessment of financial resilience takes into account aspects such as money control, expenditure management, financial cushioning, the ability to cope with financial difficulties and stress, and financial planning [1].

The study by Sungyoon Lee and Gang Chen explains the relationship between a country's financial resilience and its financial, human and political resources using the Resource Based View (RBV) theory. The results show that the impact of government resources on financial resilience differs depending on the type of resources. In general, an increase in financial and human resources is positively related to financial resilience, while excessive political resources have a negative impact on resilience; these findings are evident in the short-run model [2].

Shayne Kavanagh's article analyses the financial resilience of a country by explaining its characteristics: diversity, which ensures adaptability to change; redundancy, which reduces the risk of loss, decentralisation, which enhances local autonomy; transparency, which promotes trust and good governance, cooperation, which strengthens collective efforts, the ability to overcome setbacks with dignity, which allows learning from mistakes, flexibility, which ensures a quick response to changes, and foresight, which helps prepare for future challenges [3].

The research article by Yilin Chen and Chentong Sun proposes a new model for measuring financial resilience in terms of external risks, which consists of three submodels: a dynamic factor model, a time-varying vector autoregression model (TVP-VAR), and a model for measuring resilience characteristics with two dimensions: the intensity of absorption and the duration of shock absorption. Theoretically, the model is used to simulate and analyse changing trajectories of financial resilience in different scenarios. Empirically, the model is applied to study the resilience of the UK financial market. The results show that fluctuations in financial resilience in the UK have phase characteristics and there is a clear inverse relationship between the intensity of absorption and the duration of absorption. In particular, periods of low resilience often coincide with specific risk events. This allows not only to identify critical moments of instability, but also to develop more effective strategies to prevent or mitigate the negative effects of financial crises [4].

The financial resilience of the state during martial law is critical for ensuring national security. Increasing defense spending and ensuring monetary stability are key aspects that should be considered when developing a financial resilience strategy during wartime. Additionally, maintaining the liquidity of the banking system, effective public debt management, and providing social support for the population are essential to minimize economic risks and strengthen the country's ability to withstand both external and internal shocks [5].

During the martial law period, the National Bank of Ukraine implements a set of measures aimed at maintaining the financial resilience of the state and regulating the financial sector. When assessing financial resilience, the NBU analyses the dynamics of such indicators as the consumer price index,

the volume of international reserves and total assets of the banking system. In addition, the NBU pays attention to the stability of the exchange rate, the level of inflation expectations, and the state of public debt, enabling it to respond adequately to current challenges and maintain macroeconomic stability in difficult wartime conditions [6].

The study of Humeniuk V., Umantsiv Iu., Dligach A., Ivanova N., Umantsiv H. is devoted to assessing the impact of financial resilience of enterprises on the financial resilience of the state, since a healthy and stable corporate sector is the basis of the country's economic stability. Enterprises that manage their finances effectively, have stable revenues and can successfully withstand economic difficulties, contribute to the growth of tax revenues, provide jobs and support the country's economic development. In turn, the financial resilience of enterprises affects the overall health of the banking system and financial markets, as a healthy corporate sector reduces credit risks for banks and ensures the stability of financial institutions. Resilient enterprises are better equipped to withstand economic shocks, which reduces the risk of economic crises and helps maintain the overall financial resilience of the state [7].

Trends in the regulation of state property relations can significantly impact a country's financial resilience, as effective management of state assets ensures stable budget revenues. Privatization or optimization of state-owned enterprises reduces costs and enhances economic efficiency, positively affecting fiscal policy. Deficiencies in regulation or inefficient use of state property can lead to revenue losses and a deterioration of financial resilience [8].

The financial resilience of a country can be analysed in the context of institutional conditions aimed at increasing the state's ability to protect property rights, improving the financial capacity of the insurance market, implementing effective anti-corruption measures, protecting national economic interests and developing corporate culture. The development of institutional conditions depends on effective public policy and mechanisms to counteract shocks [9].

It is important that the institutional environment adapts to changing conditions and is capable of responding to new challenges. This includes modernising legal and regulatory structures, ensuring transparency and accountability of public and private organisations, and promoting innovation and efficient resource management [10]. In times of crisis and war, the ability of institutions to adapt quickly and ensure stability is critical to maintaining financial resilience and ensuring economic recovery. Thus, the integration of a strong institutional environment and the ability to respond quickly form the basis for resilient economic development and reduction of negative effects from external and internal shocks.

The lack of unified approaches and consistency in research on the methodological justification for the integrated assessment of a country's financial resilience requires further research. In particular, it is necessary to take into account all aspects of the country's financial resilience, which will emphasise the complexity of such a methodological approach.

The purpose of the article is to strengthen the methodology for the integrated assessment of a country's financial resilience on the example of Ukraine. To achieve this goal, the following tasks were identified: 1) to define the criteria and indicators for the integrated assessment of financial resilience; 2) to determine the threshold values of the indicators; 3) to normalise the indicators; 4) to calculate the integrated index of financial resilience; and 5) to assess Ukraine's financial resilience using the author's integrated assessment methodology.

The following methods were used in the study: the scientific research method – to summarise the approaches of Ukrainian and foreign scholars to the comprehensive assessment of a country's financial resilience; systematisation and tabular methods – to compile a list of indicators for calculating the level of financial resilience; indicative and statistical methods – to normalise the indicators and calculate the integral index of Ukraine's financial resilience; systemic,

structural and comparative analysis – to test the methodology for assessing financial resilience using the example of Ukraine.

The information base includes statistical data from the State Statistics Service of Ukraine, the World Bank Group, the National Bank of Ukraine, and the Ministry of Finance of Ukraine. These sources provide official, reliable data that form the basis for analysing and assessing Ukraine's financial resilience.

Summary of the main research material. The methodology developed aims to determine the level of a country's financial resilience and includes a list of key indicators, their threshold values, and an algorithm for calculating the integrated financial resilience index. The list of indicators was formed based on the selection of those that best characterize the country's financial resilience across macroeconomic, financial, fiscal, and external economic dimensions (Table 1).

Table 1

Financial resilience assessment indicators

No	Indicator	Characteristics of the indicator	Thres - hold value	Source of input information
Macroeconomic indicators				
1	GDP physical volume index, %.	The indicator shows how the volume of gross domestic product in constant prices changes compared to the base period	≥ 100	State Statistics Service of Ukraine. Decent work and economic growth. URL: https://sdg.ukrstat.gov.ua/uk/8-1-1/
2	GDP per capita, PPP, $	The indicator reflects the average level of economic well-being of the country's population, taking into account purchasing power parity (PPP)	≥ 10000	World Bank Group. GDP per capita, PPP – Ukraine. URL: https://data.worldbank.org/indicator/NY.GDP.PCAP.PP.CD?locations=UA
3	Share of gross fixed capital formation in GDP, %	The indicator reflects the share of investments in fixed assets in the total gross domestic product (GDP) of the country	≥ 20	State Statistics Service of Ukraine. Decent work and economic growth. URL: https://sdg.ukrstat.gov.ua/uk/8-1-2/
4	Consumer price index, %	The indicator reflects the change in the average price level of goods and services consumed by households over a certain period of time. The CPI is one of the main indicators of inflation in the economy	≤ 100	Minfin. Consumer price index. URL: https://index.minfin.com.ua/ua/economy/index/inflation/
5	Unemployment rate, %	The indicator reflects the share of unemployed people in the country's labour force. It shows what percentage of the economically active population is unemployed, but is actively looking for work and is ready to be employed	≤ 10	State Statistics Service of Ukraine. Demographic and social statistics. URL: https://www.ukrstat.gov.ua/
Fiscal indicators				
6	State budget deficit/surplus, % of GDP	The indicator reflects the difference between government revenues and expenditures as a share of the total economy (GDP)	≤ 4	Minfin. State budget of Ukraine. URL: https://index.minfin.com.ua/ua/finance/budget/gov/
7	State budget revenues, % of GDP	The indicator reflects government revenues as a share of the country's gross domestic product	30-40	Мінфін. Державний бюджет України. URL: https://index.minfin.com.ua/ua/finance/budget/gov/

Continuation of table 1

No	Indicator	Characteristics of the indicator	Thres - hold value	Source of input information
8	State budget expenditures, % of GDP	The indicator reflects the amount of government spending as a share of the country's gross domestic product	20-40	Minfin. State budget of Ukraine. URL: https://index.minfin.com.ua/ua/finance/budget/gov/
9	Level of total public debt, % of GDP	The indicator reflects the share of GDP that is accounted for by public debt, which includes both internal and external government obligations	≤ 30	Minfin. State budget of Ukraine. URL: https://index.minfin.com.ua/ua/finance/debtgov/
10	Level of execution of the plan for consolidated budget revenues, %	The indicator characterises the compliance of planned budget revenues with actual ones	≥ 98	Minfin. Revenues of the consolidated budget of Ukraine. URL: https://index.minfin.com.ua/ua/finance/budget/cons/income/
Financial indicators				
11	Broad money (% of GDP)	The indicator reflects the volume of broad money (also known as M3) relative to the country's gross domestic product (GDP)	≥ 40	World Bank Group. Broad money (% of GDP) – Ukraine. URL: https://data.worldbank.org/indicator/FM.LBL.BMNY.GD.ZS?locations=UA
12	PFTS index	The indicator is a capitalisation-weighted index calculated on the basis of stock prices traded on the Ukrainian Stock Exchange PFTS (First Stock Trading System)	≥ 500	Minfin. PFTS index. URL: https://index.minfin.com.ua/ua/markets/stock/pfts/
13	Banks' net interest margin (NIM), %	The financial indicator that measures the profitability of banks derived from their lending and deposit operations	≥ 4	National Bank of Ukraine. Supervisory statistics. URL: https://bank.gov.ua/ua/statistic/nbustatistic
14	Return on assets of the banking system, %	The indicator is one of the main indicators of banking performance and shows how much profit is generated per unit of assets	≥ 1	National Bank of Ukraine. Supervisory statistics. URL: https://bank.gov.ua/ua/statistic/supervision-statist
15	Return on equity of the banking system, %	The indicator measures how much profit the banking system makes per unit of equity capital. The indicator reflects the efficiency of using the banking system's equity capital to generate profit	≥ 15	National Bank of Ukraine. Supervisory statistics. URL: https://bank.gov.ua/ua/statistic/supervision-statist
Indicators of foreign economic activity				
16	Foreign trade balance coverage ratio	The indicator reflects the extent to which a country's exports are able to cover its imports. The indicator is calculated as the ratio of the value of exports to the value of imports	1-1,25	Minfin. Foreign trade balance of Ukraine. URL: https://index.minfin.com.ua/ua/economy/gdp/eximp/
17	Level of export dependence, % of GDP	The indicator reflects the share of exports of goods and services in a country's total GDP. It shows how much a country's economy depends on exports for its growth and development	30-60	National Bank of Ukraine. External sector statistics. URL: https://bank.gov.ua/ua/statistic/sector-external

End of table 1

No	Indicator	Characteristics of the indicator	Thres - hold value	Source of input information
18	Level of import dependence, % of GDP	The indicator reflects the share of imports of goods and services in the total GDP of a country. It shows the extent to which the economy depends on imported goods and services for its consumption and production	30-50	National Bank of Ukraine. External sector statistics. URL: https://bank.gov.ua/ua/statistic/sector-external
19	Gross external debt, % of GDP	The indicator reflects the share of the country's total external debt in relation to GDP. It helps to assess the country's ability to service its external obligations	≤ 60	Minfin. Gross external debt of Ukraine. URL: https://index.minfin.com.ua/ua/economy/foreigndebt/
20	Ratio of external debt to international reserves, %	The indicator reflects the ratio of a country's international reserves to its external debt. It shows the extent to which international reserves can cover or service the country's external debt if necessary	≥ 100	Minfin. External public debt of Ukraine. URL: https://index.minfin.com.ua/ua/finance/debtgov/foreign/

Source: authors' own development

Indicators are normalised against thresholds. If the current values of the indicators exceed the thresholds (or are lower than the thresholds), the normalised value of the indicator will be 0. If the current values of the indicators meet the thresholds, the normalised value of the indicator will be 1. The integral indicator of the country's food security is calculated using the following formula [11]:

$$I = \frac{\sum Nx=1}{\sum Nx} \times 100\%,$$

where

I – is an integral indicator of the country's food resilience;

Nx=1 – number of indicators with a normalised value of 1;

Nx – number of indicators.

The level of financial resilience of a country is the degree of counteraction, adaptation and recovery from external and internal shocks that affect the country's ability to ensure stable economic growth, reliable functioning of the financial system, effective public finance management and development of foreign economic activity. The system of quantitative and qualitative levels of the country's financial resilience is presented in Table 2.

The results of the financial resilience assessment are presented in Table 3. In 2021, Ukraine's integrated financial resilience index stood at 60%, indicating a sufficient level, with 12 indicators meeting their respective thresholds. In 2022, the index declined to 40%, reflecting an average level of resilience, with only 8 indicators meeting the thresholds. In 2023, the index began to recover, reaching 50%, which also corresponds to an average level, with 10 indicators meeting the thresholds. This improvement suggests that Ukraine has started to adapt to the wartime conditions that caused the sharp decline in financial resilience in 2022. However, the index has not yet returned to its 2021 level, indicating that the Ukrainian economy remains affected by factors that continue to constrain a full recovery. The following section provides a detailed analysis of Ukraine's financial resilience indicators.

Table 2

Levels of a country's financial resilience

No	Levels of financial resilience	Measurement scale	The number of indicators corresponding to the threshold value
1	High resilience level	81-100%	17-20
2	Sufficient resilience level	61-80%	13-16
3	Medium resilience level	41-60%	9-12
4	Low resilience level	21-40%	5-8
5	Critical resilience level	0-20%	1-4

Source: author's own development

Table 3

Ukraine's Financial Resilience Level (2021–2023)

№	Indicators	Years					
		2021		2022		2023	
1	GDP physical volume index, %,	103.4	1	71.2	0	105.3	1
2	GDP per capita, PPP, $	18040.3	1	16080.2	1	18007.5	1
3	Share of gross fixed capital formation in GDP, %	13.2	0	11.9	0	17.1	0
4	Consumer price index, %	110,0	0	126.6	0	105.1	0
5	Unemployment rate, % of GDP	10.0	1	21.1	0	18.3	0
6	State budget deficit, % of GDP	3.63	1	17.62	0	20.39	0
7	State budget revenues, % of GDP	23.75	0	34.43	1	40.87	1
8	State budget expenditures, % of GDP	27.30	1	52,12	0	61.40	0
9	Level of total public debt, % of GDP	48.9	0	78,4	0	84.4	0
10	Level of execution of the state budget revenues plan, % of GDP	119.6	1	135,0	1	201,0	1
11	Broad money (% of GDP)	38.0	0	47.7	1	47.1	1
12	PFTS index	528.92	1	519.2	1	507.02	1
13	Net interest margin of banks (NIM), %	6.0	1	7.0	1	8.0	1
14	Return on assets of the banking system, %	3.81	1	1.02	1	5.62	1
15	Return on equity of the banking system, %	32.90	1	9.33	0	52.77	1
16	Foreign trade balance coverage ratio	0.97	0	0.67	0	0.57	0
17	Level of export dependence, % of GDP	40.7	1	35.5	1	28.6	0
18	Import dependence, % of GDP	41.9	1	52.3	0	49.5	1
19	Gross external debt, % of GDP	64.9	0	81.5	0	90.4	0
20	Ratio of external debt coverage by international reserves, % of GDP	54.1	0	39.9	0	39.8	0
Ukraine's Integral index of financial resilience, %		60 %		40 %		50 %	

Source: drawn up based on [12;13;14;15]

The GDP physical volume index is an important indicator that characterises a country's macroeconomic development. According to the Sustainable Development Goals, the GDP physical volume index is a key indicator for measuring economic growth and development, especially in the context of Goal 8: Decent work and economic growth [16]. The indicator in 2022 experienced a significant decline compared to 2021, and amounted to 71.2%, which is below the threshold value (≥ 100). In 2023, the indicator resumed its growth rate and amounted to 105.3%, which is fully consistent with the threshold value.

GDP per capita, PPP, is a macroeconomic indicator that measures the average GDP per capita in a country, adjusted for purchasing power parity. The indicator is used to assess economic development, as it shows how many goods and services the average resident of a country can buy, taking into account price differences between countries. During 2021-2023, GDP per capita, PPP met the threshold value, but in 2022 it decreased by 10.8%. The share of gross fixed capital formation in GDP reflects the level of investment in the economy directed toward the acquisition, modernization, or creation of fixed assets such as buildings, equipment, infrastructure, and other long-term assets. This indicator reflects the proportion of GDP invested in expanding the country's production capacity. During the period from 2021 to 2023, it remained below the threshold level (≥ 20%). However, in 2023, the share of gross fixed capital formation in Ukraine's GDP rose to 17.1%. This increase was primarily driven by budgetary funding, particularly in the context of wartime priorities, which focused on infrastructure restoration and investment in the defense industry [17]. The Consumer Price Index (CPI) measures changes in the overall price level of goods and services purchased by the average consumer over time. It serves as a key indicator of inflation, reflecting changes in the cost of living. The CPI data for 2021–2023 indicates that prices rose significantly, reaching 126.6% in 2022 and 105.1% in 2023 compared to the baseline period.

The unemployment rate is a key macroeconomic indicator used to assess the state of the labour market and the overall economic well-being of a country. In 2022, Ukraine's unemployment rate rose to 21.1%, and although it decreased to 18.3% in 2023, it still exceeded the threshold level (≤ 10%). Rocket attacks, as well as disruptions to electricity and communication infrastructure, significantly hindered the operation of small and microenterprises, which employ a large portion of the working population. To remain operational during the war, companies have been forced to review their costs, including labour costs. Cost optimisation measures included reducing employees' working hours, transferring them to a 0.5 rate, and implementing unpaid leave. At the same time, the number of officially registered unemployed decreased due to the deregistration of those who migrated abroad and were mobilised into the Armed Forces. These statistics also do not take into account people in the temporarily occupied territories. In addition, not all unemployed people are registered with the State Employment Service [18].

The state budget deficit (% of GDP) is a fiscal indicator that reflects the difference between government revenues and expenditures expressed as a percentage of GDP. This indicator is important for analysing the government's fiscal policy, assessing the financial resilience of the state, and planning future economic strategies. The indicator met the threshold in 2021 (≤ 4). In 2022, the deficit amounted to UAH 911.1 billion, or 17.62%. The cash expenditures of the state budget amounted to UAH 2.702 trillion, or 92.2% of the plan for the reporting period. A significant increase in budget expenditures and the deficit in 2022 occurred against the backdrop of acceptable budget revenues and large-scale external financing [19]. The state budget deficit of Ukraine in 2023 reached UAH 1.33 trillion or 20.39%, which is UAH 418.9 billion more than in 2022 [20].

State budget revenues (% of GDP) reflect the proportion of GDP that the state collects in the form of revenues. This indicator helps

assess the state's ability to accumulate resources to finance its expenditures, including social programs, infrastructure projects, defence, education, and more. Ukraine's state budget revenues increased significantly during the war: in 2022, they amounted to 34.43% of GDP, and in 2023, they reached 40.87% of GDP. Despite the challenging wartime conditions, taxpayers have continued to pay taxes in good faith. Thanks to their active citizenship, the state has consistently received funds to support the Armed Forces of Ukraine and provide social benefit. However, external revenues are an important source of budget income. In 2023, the budget received UAH 1.13 trillion from external sources. The largest portion, UAH 714.9 billion, came from the EU's macro-financial assistance under the Memorandum of Understanding between Ukraine and the EU. Ukraine also received non-repayable funding from Japan, Norway, Germany, Spain, Finland, Ireland, Switzerland, Belgium, and Iceland, totaling up to UAH 25 billion [21].

State budget expenditures (% of GDP) help assess the scale and intensity of public spending relative to the size of the country's economy. This indicator is important for analyzing the government's fiscal policy, budget planning, and evaluating the financial stability of the state. After the Russian invasion, state budget expenditures on defense increased more than tenfold [22]. As a result, state budget expenditures rose to 52.12% of GDP in 2022 and 61.40% of GDP in 2023. The indicator met the threshold in 2021 when it stood at 27.30% of GDP.

The level of total public debt reflects the share of GDP accounted for by the total amount of public debt. In the context of military operations, public debt levels have been rising, and therefore, the indicator does not meet the threshold (≤ 30%). An increase in debt may lead to slower economic development and higher inflation. The primary driver of public debt growth is the increase in budget expenditures, which results in a growing budget deficit. The level of execution of the state budget revenue plan reflects the extent to which actual revenues align with the planned figures for a given period. This indicator is measured as a percentage of the planned revenue amount and demonstrates how effectively the government is implementing its plans to collect taxes, duties, fees, and other sources of income. During the war, Ukraine has maintained a high level of budget revenue plan execution (≥ 98%), largely due to assistance from international partners and organizations. Additionally, the Ukrainian economy has partially adapted to wartime conditions, which has helped sustain a stable level of state budget revenues.

Broad money (% of GDP) reflects the share of the total money supply in the economy – including cash, demand deposits, savings deposits, and other liquid assets – relative to the country's GDP. This indicator is used to assess the level of liquidity in the economy and to analyse monetary policy and financial stability. In 2021, broad money was below the threshold, at 38.0%. In 2022, it rose to 47.7%, and in 2023 it slightly declined to 47.1%. The increase in this indicator was driven by higher public spending and deficit financing, financial support from international partners, and a shift in assets toward more liquid forms.

The PFTS Index (First Stock Trading System Index) is a key indicator that reflects the price dynamics of the most liquid shares traded on the PFTS Ukrainian Stock Exchange. It is one of the main benchmarks of the Ukrainian stock market and is used to assess overall market trends. Changes in the PFTS Index indicate growth or decline in the prices of the shares included in its calculation. During 2021–2023, the index remained above the threshold value (≥ 500%), although it declined by 4.1%. This decrease signals negative market sentiment and a drop in share prices.

The net margin of banks reflects the difference between the income banks earn

from their assets (e.g., loans, investments) and the costs associated with raising funds (e.g., interest paid on deposits or other liabilities), expressed as a percentage of the average value of the bank's assets. This indicator provides insight into the profitability of banking operations and the efficiency of asset and liability management. Between 2021 and 2023, the net margin of banks increased from 6% to 8%, which meets the threshold. The net margin is a key indicator for investors, analysts, and regulators, as it helps assess the financial health of the banking system.

Return on Assets (ROA) of the banking system is a financial indicator that reflects how efficiently banks use their assets to generate profit. It is calculated as the ratio of net profit to the average value of assets. Due to the war, the ROA fell to 1.02% in 2022 but rose to 5.62% in 2023. Thus, during 2021–2023, the ROA consistently met the threshold value (≥ 1%).

Return on Equity (ROE) of the banking system measures the ability of banks to generate returns on the capital invested by shareholders. It indicates how effectively a bank uses shareholders' equity to produce profit. In 2022, ROE declined by 23.57% compared to 2021. However, in 2023, it surged to 52.77%. A high ROE indicates that banks are efficiently utilizing their equity capital, generating strong returns per unit of capital, which can be attractive to investors.

The war against Ukraine has brought significant changes for businesses engaged in foreign trade. It has led to a substantial increase in risks, including asset loss, supply chain instability, logistical difficulties, rising transport costs, and overall uncertainty in the business environment. These factors have negatively affected key indicators of foreign economic activity. The foreign trade balance coverage ratio reflects the relationship between exports and imports of goods and services. This indicator is used to assess the country's trade balance—specifically, the extent to which exports cover imports. A ratio of less than 1 during 2021–2023 indicates that imports exceeded exports, resulting in a negative trade balance or trade deficit.

The level of export dependence (% of GDP) indicates the proportion of a country's GDP generated through the export of goods and services. It is an important metric for assessing how reliant a national economy is on international trade. From 2021 to 2022, this indicator declined from 40.7% to 35.5%, while still meeting the threshold. However, in 2023, the export dependence level dropped further to 28.6%, falling below the threshold. The level of import dependence (% of GDP) reflects the share of imports in the country's total GDP. This indicator shows the extent to which a country's economy depends on the import of goods and services to meet its needs. A moderate level of import dependence – ranging between 30% and 50%—indicates a balanced ratio between domestic production and imports. From 2021 to 2022, Ukraine's import dependence increased from 41.9% to 52.3%. In 2023, it declined to 49.5%, which falls within the acceptable threshold.

Gross external debt (% of GDP) represents the total amount of a country's debt to foreign creditors as a percentage of its GDP. This indicator reflects the scale of external financial obligations relative to the size of the national economy. Between 2021 and 2023, Ukraine's external debt increased from 64.9% to 90.4% of GDP, exceeding the acceptable threshold. A high level of this indicator signals a significant financial dependence of the Ukrainian economy on external creditors.

The ratio of external debt to international reserves reflects a country's ability to service its external debt using available international reserves. A ratio between 50% and 100% indicates a sufficient level of reserves, but the country may be more vulnerable to external shocks compared to those with a higher ratio. From 2021 to 2023, the ratio decreased from 54.1% to 39.8%. This decline suggests that external debt is not sufficiently covered by reserves, which may increase financial instability risks and signal potential difficulties in debt servicing.

Overall, Ukraine's financial resilience faced significant challenges in 2022 but began to recover in 2023. This recovery shows potential for further improvement, although the level of risks remains high.

Conclusions. The proposed methodology for calculating the integrated financial resilience index of a country is a decision-making tool that allows stakeholders to gain a comprehensive view of the country's financial capacity to withstand shocks. The methodology helps to:

1. Assess the current level of financial resilience. The integral indicator allows summarising information on 20 indicators that characterise the macroeconomic, fiscal, financial and foreign economic aspects of the country's development in the face of external and internal shocks.

2. Forecast risks and shocks: An analysis of changes in the integral indicator over time allows identifying trends and possible risks that may affect the country's financial resilience. This is especially important for a timely response to negative developments.

3. Make informed decisions. The integral indicator can be used to determine the priority areas of macroeconomic policy, fiscal, monetary, and foreign economic measures that should be taken to strengthen the country's financial resilience.

Thus, this methodology serves as an important analytical tool for assessing the country's financial resilience and enables the development of strategic directions to ensure its financial capacity to withstand shocks. An integrated approach to analyzing the country's financial resilience helps identify weaknesses and threats to the economy, forming the basis for developing effective economic policies and measures.

Accordingly, in Ukraine, due to the loss and destruction of territories, businesses, and logistics chains, GDP, exports, capital investment, and industrial production have all significantly declined, while the trade deficit in goods has increased. Ukraine's integrated financial resilience index dropped from 60% in 2021 to 40% in 2022. In 2023, despite the economy beginning to adapt to martial law conditions, the financial resilience index rose to 50%. The slow recovery of the country's financial stability indicates that further efforts are required to stabilize and support the economy under these challenging conditions.

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FINANCIAL RESILIENCE OF UKRAINE UNDER THE MARTIAL LAW

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The article analyzes scientific approaches to assessing the financial resilience of a country and highlights the diversity of studies in the selection of indicators and methodologies. Despite the significance of this issue, there is currently no universally accepted, scientifically grounded approach to evaluating the financial resilience of countries.

For Ukraine, which is under martial law, determining the level of financial resilience is of particular importance. Developing an adapted methodology for assessing financial resilience, one that takes into account macroeconomic, financial, fiscal, and foreign economic aspects, is essential for ensuring a comprehensive understanding of the country's financial capacity to withstand external shocks.

The analysis of macroeconomic indicators, such as GDP per capita, the GDP physical volume index, and gross fixed capital formation as a share of GDP, along with unemployment and inflation, provides an overview of the overall economic context. Financial aspects, including broad money, the PFTS index, banks' net margins, and return on assets and capital within the banking system, offer insights into the system's ability to withstand financial shocks. Fiscal indicators – such as state budget expenditures and revenues, budget deficit, and total public debt – are essential for understanding the state's financial resilience in managing budgetary resources. Foreign economic factors, including foreign trade, export and import dependence, gross external debt, and international reserves, assess the country's integration into the global economy and its reliance on international factors. Thus, the integration of these diverse aspects into a single methodology allows for a comprehensive assessment of Ukraine's financial resilience.

Accordingly, Ukraine's Integral index of Financial Resilience (IFR) was 60% in 2021 (sufficient level), but it dropped dropped to 40% in 2022 (medium level). In 2023, the IFR began to recover and reached 50% (medium), suggesting that Ukraine has started to adapt to the war conditions that contributed to the decline in financial resilience in 2022. Despite this recovery, the IFR has not yet returned to the 2021 level, signaling that Ukraine's economy is still impacted by factors limiting its full recovery.

The proven methodology for the integral assessment of the country's financial resilience, as demonstrated in Ukraine's case, is an essential analytical tool for developing strategic directions to strengthen the country's financial capacity to withstand future shocks. An integrated approach to analyzing financial resilience helps identify vulnerabilities and threats to the country's development. The methodology is informative, recommendatory, and explanatory. It can be utilized by authorities and academic institutions within their respective competences to assess the country's financial resilience, enabling informed decision-making.

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