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Macroeconomic Environment of Ukraine and Dynamics of its Development in the Current Realities

Abstract

The purpose of the article is to analyse the key macroeconomic factors that determine the general state and dynamics of the macroeconomic environment of Ukraine in modern realities. The *methodological basis* of the study is the generalisation of the results of applied research in the field of economics, scientific works, statistical data, which highlight some aspects of the development of the modern Ukrainian economy. *Results.* The modern conditions in which the Ukrainian economy is forced to operate against the backdrop of military escalation have a corresponding impact on the state and dynamics of its macroeconomic environment, and thus on the level of economic activity of all business entities. The article analyses the peculiarities of the development of the macroeconomic environment of Ukraine in the period before the full-scale military invasion and in the first year of the war. The study analyses such structuring macroeconomic factors of the macroeconomic environment of Ukraine as the availability and accessibility of natural resources, the sectoral composition of the national economy, the state and development of the markets for goods and services, the state and development of the financial market, and analyses the main indicators of economic development. *Practical implications.* The practical results can be used as a basis for further research: on ways to improve the macroeconomic environment of Ukraine; on financial support for the recovery of the national economy and, accordingly, improvement of the dynamics of the macroeconomic environment of Ukraine; on the prospects for transformation of certain macroeconomic factors of the macroeconomic environment: in particular, in the electricity market by introducing renewable energy technologies; in the markets for goods and services by introducing the principles of the "green" economy in industrial production; in the sectoral composition of the national economy by increasing the role of technology and innovation in economic activity, etc. *Value/originality.* The results of the study provide a deeper understanding of the role and importance of the dynamics of the country's macroeconomic environment in the economic activity of business entities, as well as an assessment of the economic consequences of the war on the state of Ukraine's macroeconomic environment.

Keywords

macroeconomic environment, macroeconomic factors, national economy, Russian-Ukrainian war, economic consequences of war

JEL: E10, E20, E30, E40, E44, H56



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1 Introduction

The macroeconomic environment, its state and dynamics are of great importance for the development of the national economy, as they influence the processes of increasing and decreasing the level of economic activity of all business entities. Recent years have been marked by the need to recover from the consequences of the COVID-19 pandemic, not only for Ukraine, but for all countries of the world. However, it was Ukraine that was forced to confront the Russian Federation as an aggressor country, which carried out a full-scale military invasion of the sovereign territory of Ukraine on

24 February 2022. This situation, together with the accumulated socio-economic consequences of the military conflict with Russia that began in the south-east of Ukraine in 2014, had a significant impact on the state and dynamics of Ukraine's macroeconomic environment.

The impact of the Russian-Ukrainian war and its socio-economic consequences for the Ukrainian economy and the world economy are the subject of many scientific works, a significant number of analytical studies, expert assessments, etc. These include, in particular, studies by T. Bohdan, G. Zhyla, Z. Darvas, C. Martins, P. K. Ozili and many others.

A review of foreign works on the subject shows that foreign scholars do not always use the term 'war' to describe what is happening in Ukraine. Instead, they often use such terms as "military conflict", "geopolitical conflict" and "Ukrainian crisis". However, looking at the results of the first year of the war in Ukraine, T. Bohdan notes: "The huge losses in real GDP in the first year of the war distinguish our country from other war episodes. For example, the decline in real GDP of 25-50% in one year of conflict usually occurred only in countries that experienced capitulation or crushing defeat in the war (Germany, Austria, Japan, Iraq) or in countries where hostilities were conducted on more than 50% of the territory (Bosnia and Herzegovina)" (Bohdan, 2023).

Taking into account the work of scientists, analysts and experts, we are convinced that there is a need for a comprehensive analysis of the state and dynamics of Ukraine's macroeconomic environment in the period before the full-scale invasion of the aggressor country and in the first year of the war, highlighting the most significant economic consequences of the war for the structuring macroeconomic factors of Ukraine's macroeconomic environment.

2 Peculiarities of the Macroeconomic Environment of Ukraine before the Outbreak of a Full-scale War

The macroeconomic environment is a unique state of the economy formed under the influence of certain macroeconomic factors and their interrelationships that directly or indirectly affect the socio-economic development of the country, thereby determining the defining characteristics of the economic environment for business entities of any form of ownership and type of economic activity (Khutorna & Herasymenko, 2022, p. 206).

The general state and development trends of the macroeconomic environment are influenced by the following macroeconomic factors: availability and accessibility of resources; sectoral composition of the national economy; state and development of the markets for goods and services; state and development of the financial market; dynamics of economic development; culture of economic relations, etc.

Some of these macroeconomic factors are considered below.

Availability and accessibility of resources. First of all, it should be noted that Ukraine has a powerful natural resource potential, which is determined by its natural capital (Natural resource potential of Ukraine: ensuring the welfare and environmental safety of the population, 2021, p. 11). In 2021, national experts noted: "The real value of natural wealth, according to comparative estimates, provided that a high level of capitalization of all

types of national natural resources is achieved in more favorable economic realities than now, may amount to several trillion US dollars" (Public Institution "Institute of Environmental Economics and Sustainable Development of the National Academy of Sciences of Ukraine", 2021).

Before the military conflict with Russia in the south-east of Ukraine in 2014, and before Russia's full-scale armed invasion of Ukraine's sovereign territory in 2022, the low capitalisation of natural resources was a key issue in Ukraine's natural resource potential. In this regard, experts note: "Today, national natural resources, including, first of all, a powerful land potential, are insufficiently capitalised and integrated into the economic cycle, and are not fully used as a source of tax revenues, which primarily concern water and forestry, as well as land rent, which is currently not fully collected" (Natural resource potential of Ukraine: ensuring the welfare and environmental safety of the population, 2021, p. 12).

Sectoral composition of the national economy. The sectoral composition of the economy reflects the proportions of development of individual industries, sub-sectors, types of economic activity, production and sectors of the national economy.

An analysis of the sectoral composition of the Ukrainian economy in 2021 (Figure 1) shows that the main value-added industries are industrial production (which includes mining and quarrying (7.5%); manufacturing (11.96%); electricity, gas, steam and air conditioning supply (3.86%); water supply, sewerage, waste management and remediation activities (0.41%); construction (3.21%); agriculture, forestry and fishing (12.67%); wholesale

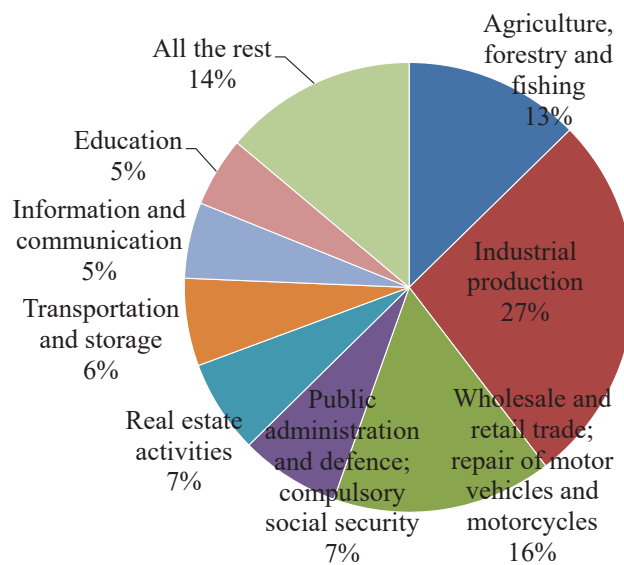


FIGURE 1 Sectoral composition of Ukraine's national economy in 2021, in %

Source: compiled by the author on the basis of data (Official website of the State Statistics Service of Ukraine)

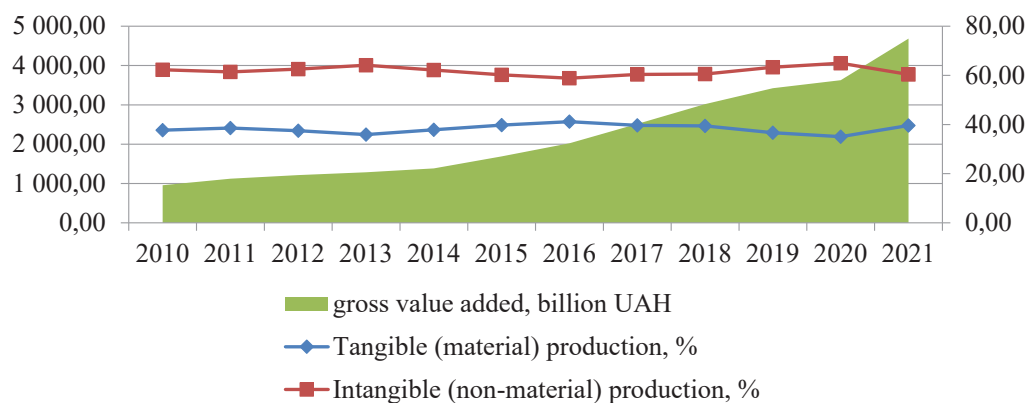


FIGURE 2 Tangible and intangible production in the structure of gross value added in Ukraine, 2010–2021

Source: compiled by the author on the basis of data (Official website of the State Statistics Service of Ukraine)

and retail trade; repair of motor vehicles and motorcycles (15.84%).

The ratio of tangible and intangible production to gross value added provides an indication of the level of industrialisation in a country (Figure 2). Thus, in the context of advanced development, a significant part of the working population is gradually released and directs its efforts to the further development of intangible production, as this sector is crucial for the processes of intellectual improvement of society and rapid economic development. In Ukraine, the share of material production in gross value added has remained almost unchanged over the past 11 years against the background of a steady increase in gross value added. On average for the period 2010–2021, the distribution of shares of material production sectors was as follows: industrial production – 24.06%; agriculture – 11.22%; construction – 2.96%. This analysis shows that there have been no significant changes in Ukraine's transition from an agrarian to an industrial country in recent years.

Development of markets for goods and services. As regards the development of goods and services markets in Ukraine, the most important are the electricity market, the agri-food market and the financial market (Lahutin, 2015).

Energy has traditionally had a high share in the total volume of industrial products sold by the mining and manufacturing industries of Ukraine, but since 2015 it has tended to decrease: from 29.1% in 2015 to 11.76% in 2021. At the same time, the share of energy in the total volume of industrial products sold abroad by the mining and manufacturing industry in the same period remains on average at 0.82% (Official website of the State Statistics Service of Ukraine).

The downward trend in the share of energy in total sales is mainly a consequence of the military conflict with the aggressor country in the south-east of Ukraine. In particular, in 2014 Ukraine

became dependent on imports of all types of energy resources for the first time in its history. As a result of this military conflict, 4 thermal power plants with a total capacity of about 5 GW (which is 26.5% of the technically used capacity of Ukrainian thermal power plants), about 60% of coal mines and enrichment facilities remained on the territories of Luhansk and Donetsk regions not controlled by Ukraine (Khalatov, 2016).

As far as the development of the agri-food market is concerned, Ukraine is one of the five largest grain exporters in the world. It exports $\frac{3}{4}$ of its total production, while domestic consumption of cereals is 20–25%. Overall, Ukraine supplies 10% of global wheat exports, over 14% of maize and over 47% of sunflower oil. In 2021, domestic food exports will total almost 28 billion USD (Official website of the Ministry of Foreign Affairs of Ukraine).

State and development of the financial market. The development of the financial market in Ukraine is a priority, as the financial market can have a positive impact on key areas of social and economic development: economic growth and investment, creation of conditions for increased reproduction of aggregate savings (Lahutin, 2015).

In terms of assets and capital, depository corporations (banks) are the leading players in the Ukrainian financial market. In particular, in 2021 the share of banks' assets in the total assets of financial corporations was 53.32%, and the share of their capital in the capital of all financial corporations was 42.88%. The banking sector's profit in 2021 reached a historic high of 77.5 billion UAH, almost twice as much as in 2020 (39.7 billion UAH) and 33% more than in 2019 before the crisis (58.4 billion UAH) (Official website of the National Bank of Ukraine).

The main trends in the financial market in 2021 were as follows (Official website of the National Bank of Ukraine; Official website of the National Commission on Securities and Stock Market):

- *in the monetary market segment*, the NBU gradually increased its key policy rate from 6.0% at the beginning of the year to 9.0% at the end of the year; and increased the NBU's mobilisation of bank funds by 86 billion UAH since the beginning of the year;
- *in the banking segment* – an increase in deposits by 11.56% in 2021 compared to 2020 against the background of a decrease in their value (on average for the year) both in national (from 5.9% to 4.85%) and foreign currency (from 1.74% to 0.95%); an increase in loan volumes by 10.09% in 2021 compared to 2020, an increase in the interest rate on loans (on average for the year) in national currency (from 13.68% to 19.68%) and a decrease in the interest rate on loans in foreign currency (from 4.87% to 3.89%);
- *in the capital market segment* – a decrease in the total volume of equity securities issued in 2021 (112.39 billion UAH), compared to 2020 by 1.01 billion UAH; an increase in the volume of shares issued by corporate investment funds by 12.38 billion UAH, setting their share in the total volume of equity securities issued in 2021 at 45.3%; the volume of trading in domestic government bonds in organised capital markets – 98.18% of the total volume of trading in financial instruments;
- *in the foreign exchange market segment*, the official US dollar exchange rate depreciated to 27.2782 USD/UAH at the end of the year; the official euro exchange rate depreciated to 30.7760 EURO/UAH at the end of the year.

In general, it can be concluded that the financial market functioned stably in the period preceding the full-scale military invasion.

Indicators characterizing the state of Ukraine's macroeconomic environment in recent years are shown in Table 1.

The analysis of the data in Table 1 shows the main trends in the macroeconomic environment of Ukraine in 2018–2021 and after COVID-19. In particular, in 2021, compared to 2020, GDP increased by 1,228.82 billion UAH, but the inflation rate increased by 6.7 p.p. In general, all price indices tended to increase significantly: industrial producer price indices increased by 43%; price indices of agricultural production sold by households increased by 15%; price indices of agricultural production sold by enterprises increased by 14%; construction price index increased by 13%. At the same time, the growth dynamics of the production indices was slower: the industrial production index increased by 6.7%; the indices of the physical volume of agricultural products – by 5.54%; the retail trade index – by 3.45%; the index of construction products – by 1.14%.

The analysis of the group of socio-economic development indicators shows that in 2021, compared to 2020, there was an increase in the unemployment

rate to 9.8% and a decrease in the economically active population to 49.3%. At the same time, the labour cost index increases by 1.97% and the real wage growth rate is 110.5%.

The analysis of monetary market indicators shows the following trends in 2021 compared to 2020: the money supply (M3 aggregate) increased by 11.96%, cash in circulation (M0 aggregate) by 12.58%, and the share of cash in circulation in the money supply remained high at 28.05%; the NBU's monetary base increased by 11.16% to 662.5 billion UAH. The NBU key policy rate increased from 6.5% in 2020 to 9.0% in 2021; international reserves grew by 6.21% to 30.94 billion USD. The official exchange rates of the US dollar and the euro stabilise in 2021 and amount to 27.78 UAH/USD and 30.92 UAH/EUR. The analysis of the Banking segment in 2021 has been discussed above.

The analysis of public finance indicators in 2021 compared to 2020 shows some improvements: in particular, the share of public debt in GDP decreased by 11.9 p.p. and amounted to 48.9%, which is significantly less than in 2018–2020. The share of external debt in public debt decreases by 1.13 p.p. and amounts to 58.4%, which is significantly lower than in 2018–2020.

As far as external sector indicators are concerned, it is important to note a significant increase in foreign direct investment (into Ukraine) – from 0.87 billion USD in 2020 to 6.69 billion USD in 2021.

The analysis shows that the state of Ukraine's macroeconomic environment in the period before the full-scale military invasion on 24 February 2022 can be characterised as a state of slow but systematic recovery from the consequences of the COVID-19 pandemic.

3 Economic consequences of the war on key macroeconomic factors

The socio-economic impact of the first year of the Russian-Ukrainian war on Ukraine's macroeconomic environment is significant.

Ukraine's natural resource capital has been damaged on a gigantic scale: not only has the environment suffered, but the territories with the most lucrative natural resources have been seized. The Ukrainian territories occupied by the aggressor country contain natural resources worth at least 12.4 trillion USD (Faiola & Bennett, 2022).

The state and development of the markets for goods and services have undergone very important changes as a result of the war, with both significant losses and new prospects. In particular, the electricity market and the energy sector of Ukraine are among the most affected, as energy facilities have been among the targets of enemy missile attacks. As of 23 January 2023, Ukraine's power grid has experienced 12 missile attacks and

TABLE 1 Indicators characterizing the state of Ukraine's macroeconomic environment, 2018–2022

Group of indicators / Year	2018	2019	2020	2021	2022
Economic development indicators					
GDP, UAH billion	3 560,30	3 977,20	4 222,03	5 450,85	-
Inflation rate, %	110,90	107,90	102,70	109,40	120,20
Indicators of industrial development					
Industrial production index, %.	103,00	99,50	95,50	101,90	63,10
Industrial producer price indices, %	117,40	104,10	98,40	140,80	161,00
Index of construction products, %	108,60	123,60	105,60	106,80	34,90
Construction price index, %	123,00	106,00	103,70	117,50	120,10
Retail trade index, %	105,80	111,40	107,20	110,90	-
Indices of physical volume of agricultural products, sold by enterprises, %	105,70	114,10	88,40	93,30	151,50
Price indices for agricultural production, sold by households, %	110,40	109,30	112,00	128,90	119,70
Price indices for agricultural production sold by enterprises, %	109,30	92,40	119,20	136,00	112,70
Indicators of social and economic development					
Labor cost index, %	122,01	119,58	113,86	116,11	-
Economically active population, %	57,10	51,70	49,90	49,30	-
Unemployment rate, %	8,80	8,20	9,50	9,80	-
Real wage growth rate, %	112,50	109,80	107,40	110,50	-
Monetary market indicators					
Monetary aggregate M3, UAH billion	1 277,64	1 438,31	1 850,01	2 071,36	2 501,62
Monetary aggregate M0, UAH billion	363,63	384,37	516,08	581,01	666,07
NBU's monetary base, UAH billion.	435,80	477,49	595,99	662,50	792,54
NBU discount rate (end of year), %	18,00	15,50	6,00	9,0	25,00
NBU's international reserves, USD billion	20,82	25,30	29,13	30,94	28,49
Deposits, UAH billion	932,97	1 071,67	1 348,13	1 503,91	1 893,85
Deposit interest rate (average for the year), (national currency) %	12,77	13,60	5,90	4,85	5,64
Deposit interest rate (average for the year), (foreign currency) %	2,83	2,73	1,74	0,95	0,83
Loans, UAH billion	1 073,13	971,87	948,39	1 044,05	1 007,65
Loan interest rate (average for the year), (national currency) %	14,87	12,86	13,68	19,68	18,82
Loan interest rate (average for the year), (foreign currency) %	5,63	4,86	4,87	3,89	3,28
Public finance indicators					
Budget deficit, UAH billion	-59,25	-78,05	-217,10	-197,94	-914,70
Balance (budget deficit) in % of GDP	-1,66	-1,96	-5,18	-3,63	-
Public debt, UAH billion	2 168,63	1 998,28	2 551,94	2 671,83	4 071,68
Share of foreign debt, %.	64,43	58,01	59,52	58,40	64,12
Public debt / GDP, %, in	60,90	50,30	60,80	48,90	-
Foreign exchange market indicators					
US dollar exchange rate	27,69	23,69	28,28	27,28	36,57
Euro exchange rate	31,71	26,42	34,74	30,92	38,95
External sector indicators					
Consolidated balance of payments, USD billion	2,88	5,98	1,99	0,49	-2,90
Trade balance (exports-imports), USD billion	-11,38	-12,51	-2,38	-2,67	-25,94
Foreign direct investment (in Ukraine), USD billion	4,46	5,86	-0,87	6,69	0,84
Ukraine's gross external debt, USD billion	114,71	121,74	125,69	129,71	132,00

Source: compiled by the author on the basis of data (Official website of the National Bank of Ukraine; Official website of the Independent Association of the Banks of Ukraine; Official website of the State Statistics Service of Ukraine)

14 UAV attacks on energy facilities (Dolomanzhy & Andalitska, 2023).

On 16 March 2022, a historic event took place in the country's energy sector: the Ukrainian power system was disconnected from the Soviet past – the power grids of Russia and Belarus. Today, Ukraine's power system is fully synchronised with the ENTSO-E continental European power grid (Official website of the Ministry of Energy of Ukraine).

Given the economic consequences of the war for the electricity market, the issue of developing alternative energy sources has become a real priority. In 2021, experts concluded: "It is possible to ensure a stable supply of electricity by reaching a share of renewable energy sources of more than 50% of electricity production in 2030." (Prois, Mykhailenko, Sabaka, Probst, 2021) Increasing the share of renewable energy sources in total energy production is in line with the principles of a green economy and is also in line with the European Green Deal, which Ukraine has agreed to join (Official website of the Mission of Ukraine to the European Union).

The war in Ukraine is considered to be the main cause of the global food crisis, which could have serious political and economic consequences (Official website of the Ministry of Foreign Affairs of Ukraine). As a result of the hostilities in Ukraine, exports of major commodities fell significantly in 2022 compared to 2021. In particular, exports of products of plant origin decreased by 2,059.55 million USD, exports of vegetable products decreased by 2,059.55 million USD, fats and oils of animal or vegetable origin decreased by 1,087.87 million USD (Official website of the State Statistics Service of Ukraine).

The economic impact of the war on Ukrainian industry has been devastating. As of 27.09.2022, 422 industrial enterprises have been totally or partially destroyed. According to the World Bank's PDNA methodology, the total cost of industrial damage as of 01 July 2022 is estimated at 8.1 billion USD. This represents almost 4.1% of the country's GDP in 2021, 6.3% of total assets and an impressive 24.9% of total equity across all industrial sub-sectors in Ukraine as of Q3 2021 (Moroz & Bondarenko, 2022). It is also important to note that in 2022, compared to 2021, exports of non-precious metals and products decreased by 9,986.9 million USD (Official website of the State Statistics Service of Ukraine).

In general, the economic consequences of the first year of the war for Ukraine's macroeconomic environment should be described as "gigantic": a decline in Ukraine's GDP – estimated at 30.4% ($\pm 2\%$) in 2022 (according to preliminary forecasts, GDP growth in 2023 and the inflation rate – 24%); a decline in industrial production – the industrial production index fell to 63.1%, and the construction index – to 34.9%; an increase in the state budget

deficit and public debt – by 716.76 billion UAH and 1,399.86 billion UAH respectively; an increase in the official exchange rates – to 36.57 UAH/USD and to 38.95 UAH/EURO; a decrease in foreign economic activity – the balance of payments was negative for the first time in recent years and amounted to minus 2.9 billion USD, the trade balance – minus 1.5 billion USD.

Regarding the impact of the full-scale war on the state and development of the financial market, it should be noted that the government and the NBU managed to quickly stabilise the financial market and keep the situation under control. Thus, in the first year of the war, the NBU switched to a policy of regulatory easing, approved a sharp increase in the key policy rate (from 9.5% in 2021 to 25% in June 2022) to encourage banks to raise deposit costs and increase hryvnia savings. However, the situation of bank lending has deteriorated significantly due to the financial situation of companies and the desire of banks to reduce lending (for example, the volume of loans attracted decreased by 36.40 billion UAH, although the cost of loans in national currency (on average) decreased from 19.68% to 18.82% over the same period) (Official website of the National Bank of Ukraine).

4 Conclusions

In the period before the full-scale invasion of the aggressor country, the main macroeconomic factors that determined the state and dynamics of development of the macroeconomic environment of Ukraine were: low level of capitalisation of natural resources; lack of structural changes in the sectoral composition of the national economy that would signal the beginning of the transition from the agrarian to the industrial vector of the country's development; high dependence of the energy sector on fossil fuels and their imports; insufficient development of the financial market, in particular the bank-centric nature of the financial sector, the virtual absence of derivatives trading on the stock market, etc.

The most significant economic consequences, which affected the overall dynamics of the macroeconomic environment after the full-scale invasion of the aggressor country, are as follows: significant environmental damage and loss of a costly part of Ukraine's natural capital; forced emigration of a significant part of the working population outside the country; destruction of the energy sector; decrease in food exports; jeopardisation of future sowing and harvesting, a real threat to food security in Ukraine and the world; destruction of industrial enterprises and a decrease in industrial production; decrease in bank lending to enterprises, etc.

The most important prospects for improving the macroeconomic environment in Ukraine are: full synchronisation of the Ukrainian energy system with the ENTSO-E; acceleration of the processes of bringing the culture of economic relations in Ukraine into line with European standards; the possibility of starting a process of transition to the foundations of a "green" economy and the European Green Deal; growing interest of foreign investors in Ukraine, etc.

Thus, the deep economic and financial crisis caused by the war will have a significant negative and long-lasting impact on Ukraine's macroeconomic environment. Expectations are high for efforts to prepare for Ukraine's post-war reconstruction. An important challenge is to provide financial support for economic reconstruction and thereby improve the state and dynamics of Ukraine's macroeconomic environment.

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