INSIGHTS INTO REGIONAL DEVELOPMENT
ISSN 2669-0195 (online) https://jssidoi.org/ird/
2023 Volume 5 Number 1 (March)
http://doi.org/10.9770/IRD.2023.5.1(1)

Publisher
http://jssidoi.org/esc/home

FINANCIAL INSTRUMENTS FOR ENSURING NATIONAL SECURITY: EXPERIENCE OF UKRAINE IN MILITARY CONDITIONS

Oksana Radchenko [1*], Leonid Tulush [2], Serhii Leontovych [3]

[1,2] National Science Center "Institute of Agrarian Economics",10, Heroiv Oborony Street, Kyiv, 03127, Ukraine
[3,] National Defence University of Ukraine named after Ivan Cherniakhovsky, 28 Povitroflotsky Avenue, Kyiv, 03049, Ukraine

*E-mails: *[1]oxanarad@ukr.net (Corresponding author); [2]tulush@ukr.net ; [3]gymr2020@i.ua*

Received 15 August 2022; accepted 10 January 2023; published 30 March 2023

Abstract. State security is the main guideline of state policy in the face of global challenges. For Ukraine, it is especially relevant, because during the period of the russian-Ukrainian war, its foundations and essence experience significant deformations. Since the risks and threats to national security have increased enormously in Ukraine under martial law, its financial component should be formed according to the tools corresponding to the challenges, even ahead of them, since, according to analysts, modern war is a war of finances. The problems faced by the state, the banking system, financial and commodity markets and institutions, corporations and households need new financial instruments to ensure flexibility in financing strategic goals. As of September, the losses of the Ukrainian economy from the war are estimated according to various estimates, from USD 105 billion, or 70% of the average annual GDP over the past 5 years, to USD 600 billion, and this exceeds the level of GDP in 2021 by 3 times. This actualizes the needs of the scientific study of financial instruments with the aim of effective state regulation and equalization in the face of limited and increasing losses of human and material resources, changes in the direction and speed of financial flows, their sources, structure, reproduction and reservation. The study examines financial instruments of a predominantly budgetary direction, as well as the components of national indicators of financial security. It is also important to analyze the share of the state in the economy, the size of which determines the speed of response and the completeness of resistance due to a threat to national security. To achieve the goals of the study, the main legally established risks of financial instruments of the national economy during the period of martial law are systematized. The indicators of the financial security of the state for the period of hybrid and military aggression of the rf (2013-2021) were assessed, and according to open sources of data, which are rather limited, a forecast of these indicators for 2022 was made. On the basis of the Financial Stability Report of the National Bank of Ukraine, the budget innovations of the period of martial law are analyzed. The sources of financing the state budget for the period of the legal regime of martial law and its main directions for 2023 are summarized. It is concluded that the financial system of Ukraine in a short time managed to organize financial flows in accordance with the needs of ensuring national security, form an optimal balance of resources, maintain the volume of financing of basic budget expenditures, attract donor resources and resist the inevitable decline of the economy during the war. The role of donor countries of economic and military assistance, in particular Latvia, in deterring military aggression and ensuring the stability of Ukraine's financial policy was emphasized.

Keywords: Ukraine; Latvia; EU; financing; national security; martial law; State budget; financial indicators; National Bank of Ukraine; food security

Reference to this paper should be made as follows: Radchenko, O., Tulush, L., Leontovych, S. 2023. Financial instruments for ensuring national security: experience of Ukraine in military conditions. *Insights into Regional Development,* 5(1), 10-25. http://doi.org/10.9770/IRD.2023.5.1(1)

JEL Classifications: E60, F50, F52, G18, H2, H25, O13, O31, Q50

INSIGHTS INTO REGIONAL DEVELOPMENT
ISSN 2669-0195 (online) https://jssidoi.org/ird/
2023 Volume 5 Number 1 (March)
http://doi.org/10.9770/IRD.2023.5.1(1)

1. Introduction

According to the Concept (Concept, 2012), national security in the financial sector of Ukraine includes security issues in the following areas: budget, management of public debt, state-guaranteed debt and debt of the corporate sector, taxes, finance of the real sector of the economy, banking, foreign exchange market, stock market and non-banking financial sectors. To be effective, the financial sector requires the following qualities: balance, resistance to internal and external threats, the ability to ensure the optimal functioning of the national economy and the economic growth of the state.

Decree of the President of Ukraine No. 64/2022 "On the introduction of martial law in Ukraine" (Decree, 2022) provides for the need to ensure funding for measures related to the introduction of the legal regime of martial law on the territory of Ukraine. In practice, this Decree recognizes that the war and its course depend on the amount of funding and the effective distribution of existing and potential internal and external financial flows.

With the beginning of active hostilities, economic relations underwent severe deformation and the structure of the financial market, public finances, and financial flows of internal and external persuasion changed dramatically. All possibilities of state regulation of financial policy have been mobilized to stabilize the situation. The leading role in this process belongs to the government through legislation in terms of fiscal, customs, investment policy; National Bank of Ukraine; The state budget; financial market stakeholders, etc.

According to the report of the Ministry of Finance (Marchenko, 2022), in 2021, despite the COVID-19 crisis and turbulence in financial markets around the world, Ukraine demonstrated economic resilience: the GDP debt was reduced below 50%, the budget deficit was below 3% in GDP, a certain overfulfillment of the budget in terms of income. The financial balance of Ukraine before the introduction of martial law (February 24, 2022) was ensured by the financial flows of the open economy in the largest volume due to the export of agricultural products, metallurgy and IT services (Karakuts et al., 2022); developed regional interrelations on the overflow of financial capital; balanced state budget; beneficial interaction of agents and stakeholders of the financial market Under the state of martial law, the financial capabilities of the country are significantly weakened, while the need for financing defense and maintaining the country's life has increased significantly and is growing as the infrastructure is destroyed. Enterprises that are located in the war-torn zones practically fell out of the financial flows, while their share in GDP reached more than 50%; Many financial market stakeholders have ceased their activities, logistics and international trade have been disrupted, seaports have been blocked, budget expenditures are directed only to defense and minimally to social protection of the population. Financial instruments bear the greatest burden of the lever of regulating the security of the national economy, so these issues are important for research.

2. Literature review

The state and development of financial instruments for regulating national security, as well as the issue of financial security itself, are being studied by scientists, think tanks, public platforms, which is reflected in the adoption of legislative acts and the preparation of new ones, which together influence the formation of the financial policy of martial law.

ISSN 2669-0195 (online) https://jssidoi.org/ird/
2023 Volume 5 Number 1 (March)
http://doi.org/10.9770/IRD.2023.5.1(1)

The efforts of scientists are aimed at the following areas: Behnassi & Haiba (2022), Benton, Deininger & (2022), Glauben & (2022) - the subject of the consequences of the russian-Ukrainian war for global food security; Buti & Messori (2022) - as a central fiscal capacity in the combination of the EU domestic and global agenda; Wyrwa (2020) on the review of European Union financial instruments supporting the innovative activity of enterprises in the context of Industry 4.0 in 2021-2027; Grishchenko & Kovtun (2022), Shaleny and others. (2022), Tytarenko & Yatsenko (2022), Tulush etc. (2022) - the state of state support for business during the war; Demianyshyn & Lobodina (2020) - development of the financial mechanism in the context of reforming the financial system; Johnson, Luby, & Moldogaziev (2021) - State and Local Financial Instruments: Policy and Governance Changes; Dropa (2017) - financial instruments for the formation of resources in the context of globalization; Lakatos & Arsenopoulos (2019) - SWOT analysis of a study of EU financial instruments to address energy poverty in households; Mullins & Murphy (2009) - financial globalization, state autonomy and modern financial instruments; Nakamura (2014) long-term financial regulation: monitoring of financial instruments as a complement to the regulation of financial institutions; Wishlade & Michie (2014), Nyikos (2016) - EU financial instruments lessons learned 2007-2013 for the period 2014-2020; Petrukha, Petrukha, & Krupelnytska (2022) - sustainable development goals and triggers for modernizing public finances; Khalatur and others. (2019) - financial instruments and innovations in the business environment: countries of Europe and Ukraine; Essa & Jasim (2022) - A comparative study of the concept of financial instruments.

However, aspects of financial instruments under martial law are not covered enough, since there was no such experience yet, therefore this is the object of our study in order to find effective, comprehensive mechanisms to support the economy, business and society of Ukraine.

2. Research methodology / Materials and Methods

The study is based on the hypothesis that financial instruments are a set of financial methods and levers of regulatory, informational and resource support that contribute to the organization of the planning process, stimulation and rational use of financial resources in order to ensure optimal financial flows, balanced economic development and obtain a beneficial social effect, studied for example by Kvasnytsia & Nekliudova (2020). Financial instruments are aimed at regulating financial flows in the serviced industry, that is, there are financial instruments for the agricultural sector, industry, trade, etc.

The most complete position of assessing national security, and in its composition of financial security, boils down to the fact that (Kharlamova, 2019) global security affects all states, and methods for assessing a particular state of its national security are currently invalid in the context of growing cyclical trends, therefore, such terms should only be used as a policy to protect the national economy from economic and other shocks during global fluctuations. We proceed from the assumption that financial instruments are the organizational embodiment of the resources of the financial market, the finances of the state, corporations and the population.

According to the Concept (Concept, 2012), the state of the financial sector of Ukraine depends on internal and external phenomena and factors (Table 1): the financial and credit policy of the state, the current political situation in the state, the perfection of legislative support for the functioning of the financial system, as well as international obligations of the state and has features for the period of martial law. Presenting information about the existing fiscal risks in the area of public finance increases the degree of soundness of financial policy decisions.

Table 1. Phenomena and factors that may lead to threats to the national security of Ukraine in the financial sector

External factors Internal factors	External factors Internal factors
a peaceful time period	
limited access to international financial markets	imperfection of legal regulation in the financial sphere
significant dependence on export-import activities	uneven distribution of the tax burden
the deterioration of the state of foreign trade, the growth of the balance of payments deficit, in particular the current account	outflow of capital abroad due to the deterioration of the investment climate
significant dependence on external creditors	imbalance of the budget system
the impact of global financial crises on the financial system of the state	insufficient level of reserves
insufficient development of investment lending to the economy	weak development of the stock market
period of martial law *	
disruption of international borrowing flows	a significant increase in the NBU discount rate
difficulty in fulfilling international financial obligations	depletion of reserves
decrease in the volume of export-import activity	financing of the NBU budget through the issuance of government bonds
dependence on the decisions of state governments to provide aid	loss of territories and termination of enterprise activity
the global crisis of the financial sector due to the security and energy crises	a significant reduction in tax revenue
prohibition to use donor funds for the needs of the army	a significant increase in social support payments for refugees
	relocation of business abroad

** added by the authors*

Source: Concept (2012)

According to Clause 52 of the first part of Article 2 of the Budget Code of Ukraine, fiscal risks are factors (including contingent liabilities and quasi-fiscal operations) that can lead to a decrease in budget revenues and/or require additional budget expenditures, respectively, cause an increase in the budget deficit and state of (local) debt compared to planned budget indicators. Information about fiscal risks and forms of their manifestation according to budget forecasts for 2023 is given in the Table 2.

Table 2. Information on fiscal risks and forms of their manifestation according to forecasts for 2023

Risks	Forms of risk manifestation
Functioning of the financial sector	the unprofitability of the banking sector, the growth of deductions to reserves, the loss of at least 20% of the loan portfolio as a result of the war and the economic crisis; the risk of collateral loans issued in the temporarily occupied territories
Fiscal risks related to public debt	there is a risk of non-fulfillment of obligations by economic entities of both the state and communal sectors of the economy to creditors for borrowings obtained under state guarantees, to the Ministry of Finance, as a creditor, for loans obtained by the state from international financial organizations
Fiscal risks of economic entities of the state sector of the economy	the emergence of new extraordinary challenges in the activities of state-owned companies, in particular, caused: reduction of production volumes and sales volumes; loss of assets and labor resources; rising prices for energy, raw materials and materials; complication and increase in the cost of logistics; loss of sales markets; significant deterioration of calculations; growth of receivables; shortage of working capital; growing need for loan funds and/or state support; a significant increase in the obligations of state-owned companies under PSO
Fiscal risks of the social sphere	non-fulfillment of the planned indicators of the Pension Fund's own income as a result of: decrease in the number of employees; decrease in the level of solvency; the increase in arrears for the payment of social security contributions and the reimbursement of preferential pensions
Fiscal risks of agriculture and food security	destruction of agricultural infrastructure, destruction of production facilities, storage, transport, energy, processing industry, loss of acreage; reduction of export opportunities of Ukraine and shortage of products on world markets; failure of the stable supply of agricultural products from Ukraine led to a rapid increase in world prices for grain and a decrease in its price on the domestic market, as well as to an increase in the corresponding balances; in the zone of hostilities, agricultural enterprises were physically destroyed, up to 30% of livestock, 25% of berry orchards and 20% of orchards were lost, 5% of land was damaged; the increase in the cost of fertilizers, fuel, and seed materials has led to an increase in the cost of production, which threatens the bankruptcy of enterprises and the rejection of the sowing campaign in 2022/2023

ISSN 2669-0195 (online) https://jssidoi.org/ird/
2023 Volume 5 Number 1 (March)
http://doi.org/10.9770/IRD.2023.5.1(1)

Fiscal risks associated with the elimination of the consequences of emergency situations	in the first half of 2022, 32 emergency situations were registered, of which 15 were man-made, 14 were natural, 2 were social, and 1 was military. In 2022, their increase to 115–135 is possible, while the number of natural resources will be in the range of 88–108. In connection with the armed aggression of the russian federation against Ukraine, the State Emergency Situations Service has classified a state-level military emergency from 24.02.2022 on the entire territory

Source: Information on fiscal risks (2023)

To predict the vector of development of the financial component of national security, dynamic stochastic general equilibrium models are constructed, which makes it possible to study the effects of the influence of the macroeconomic policy applied at the moment on the predicted state of the economy. In the arsenal of modeling there is a fairly wide range of financial policy tools to influence the economic equilibrium. Under martial law, the government's response to economic shocks is probably the most expedient - an exogenous shock - an active stabilization policy aimed at neutralizing the consequences of the shock.

The recognized integral index of national security of Ukraine according to the components proposed by Kachinsky (2013) can take on a value from 0 to 1, in particular: values of 0-0.25 characterize the critical or very low state of the national security of Ukraine (inclusion here and in subsequent ranges of the upper limit); values of 0.25–0.5 indicate a low level of national security; 0.5-0.75 - average level; 0.75-1 - high. For the period 2013-2017. its average value was 0.38 (Kharlamova, 2019), by 2021 it increased to 0.58 (Luchik, 2018).

Indicative sub-indices of financial security are calculated according to the “Methodological recommendations for calculating the level of economic security of Ukraine” (Methodological recommendations, 2013). According to the Methodological Recommendations, the calculation of the integral indicator for each area of security, in particular financial security for the purposes of our study, is carried out according to the formula:

$$I_m = \sum_{i=1}^{n} d_i y_i \qquad (1),$$

I_m - aggregate indicator/subindex of the m-th sphere of financial security, where m=(1, 2, 3...9); d_i - weight coefficient that determines the degree of contribution of the i-th indicator (banking security, security of the non-banking market, debt security, budgetary security, currency security, monetary security) to the integral index of the economic security component; y_i - normalized score of the i-th indicator.
The integral indicator of financial security of Ukraine (I) is calculated by the formula:

$$I_m = \sum_{m} d_m y_m \qquad (2),$$

where I_m - aggregation indicator/subindex of the m-ї sphere of financial security, de m = (1, 2, 3 ... 9); d_m - vagovyy coefficient, which indicates the level of inclusion of indicator/subindex m-ї sphere of financial security in the integral index of financial security of Ukraine; y_m- normalized assessment of the i-th indicator.

On the basis of such a comprehensive methodological approach, the state and transformation of financial indicators of the Ukrainian economy during the period of the legal regime of martial law have been studied.

3. Results and Discussion

Since the beginning of russia's military aggression and the introduction of martial law in Ukraine, in addition to other losses, losses in the economy have grown catastrophically. As of two quarters and early September, the Ministry of Finance (MinFin, 2022) predicts that the gross domestic product (GDP) of Ukraine may fall by 30-50% due to a full-scale war with the russian federation; in absolute terms, in 2021 prices, this would correspond to

ISSN 2669-0195 (online) https://jssidoi.org/ird/
2023 Volume 5 Number 1 (March)
http://doi.org/10.9770/IRD.2023.5.1(1)

UAH 1.6-2.7 trillion ($56-92 billion) of lost production during the year (Danylyshyn, 2022). For comparison, Ukraine's GDP in 2021 was estimated at $200 billion, that is, over the 7 months of the war, the damage exceeded GDP by 3 times, despite the fact that the intensity of destruction and losses is increasing. The National Bank of Ukraine (NBU, 2022) forecasts a GDP contraction of at least 1/3; The International Monetary Fund (IMF, 2022) expects the Ukrainian economy to contract by 35%, which is the deepest economic decline in the history of independent Ukraine. Other analysts, in particular the Kyiv School of Economics (KSE, 2022), estimate the destruction of infrastructure alone at $568-600 billion, and the National Research Center "Institute for Agrarian Economics" (NSC, 2022) estimates losses in the agricultural sector, which produces 12% of GDP and half of the country's export earnings, at least $58 billion. Such a significant drop concerns not only the Ukrainian economy, the losses are felt all over the world, since they are primarily related to global food and energy security.

The reaction of the financial market to the introduction of martial law through a review of the dynamics of the volume of financial market resources for the conditions of Ukraine in 2018-2022 is given in Table 3. The dynamics of the financial market over this period was heterogeneous, since the end of 2018, only the resources of the banking sector increased by 50%, while other resources either remained unchanged or decreased. Compared to the same period in 2018 (June 30), budget resources in 2022 increased by 40%. Corporate resources at the beginning of 2022 showed an increase of 17% compared to 2018.

Table 3. Dynamics of financial market resources, budget and resources of Ukrainian corporations for 2018-2022, UAH bln

	31.12.2018	31.12.2019	31.12.2020	31.12.2021	31.03.2022	30.06.2022
Banks	1360	1493	1823	2054	1970	2043
Insurers	63	64	65	65	65	66
Credit unions (r.h.s.)	2	3	2	2	2	2
Finance companies	125	162	188	214	205	204
Pawnshops (r.h.s.)	4	4	4	4	4	3
Budget	928	998	1076	1296	329	628
Resources of corporations	6941	6965	7395	8146	нд	нд

Source: built by the authors on the basis of NBU data, Non-Banking Sector Review (2022)

In 2018, the volume of financial resources of the market (including state budget resources) amounted to UAH 2,476 billion, in 2021 - UAH 3,629 billion, or 47% more. During the first quarter of 2022, resources decreased almost to the level of 2018, but already in the 2nd quarter of 2022 they increased by almost 30% against the level of 2018. At the same time, against the level of 2021, they are only 12% lower, and not 29%, as it was in the first quarter of 2022. Thanks to the relevant measures taken by the Government and the NBU, it was partially possible to stabilize the financial system and the revenues of the State budget, which is the greatest achievement of state regulation under martial law.

The impact of the introduction of martial law on the stability of the financial system of Ukraine (Fig. 1) is expressed in the fact that, thanks to the preliminary measures taken by the NBU to regulate the financial market, the drop in financial flow is less than could be expected under the influence of many shocks.

ISSN 2669-0195 (online) https://jssidoi.org/ird/
2023 Volume 5 Number 1 (March)
http://doi.org/10.9770/IRD.2023.5.1(1)

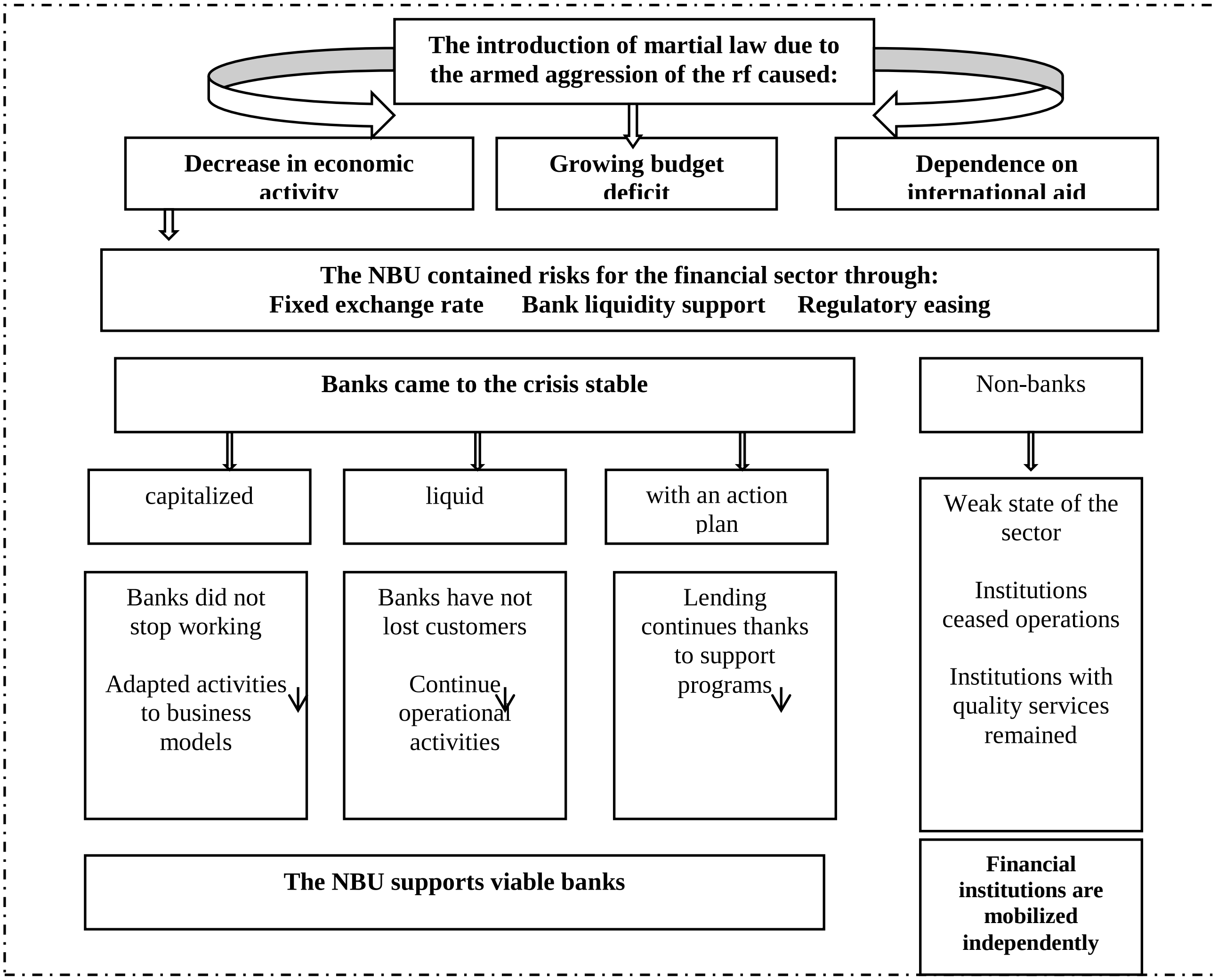


Fig. 1. The impact of the introduction of martial law on the financial system of Ukraine, 2022

Source: Report on the financial stability of the NBU.

The financial crisis of Ukraine, caused by the war, requires the formation of a sufficient amount of financial resources and effective management of financial flows. The government of the country is pursuing a policy of promoting the development of the domestic financial market, which restrains the economic decline, makes it possible to intensify investment processes and overcome the shortage of capital.

As of the beginning of September, financing of the state budget of Ukraine since the beginning of the full-scale war against Ukraine has been carried out for USD 31.951 billion or UAH 988,161 mln. Funding sources are government bonds, the IMF, bilateral agreements and grants (Fig. 2)

INSIGHTS INTO REGIONAL DEVELOPMENT
ISSN 2669-0195 (online) https://jssidoi.org/ird/
2023 Volume 5 Number 1 (March)
http://doi.org/10.9770/IRD.2023.5.1(1)

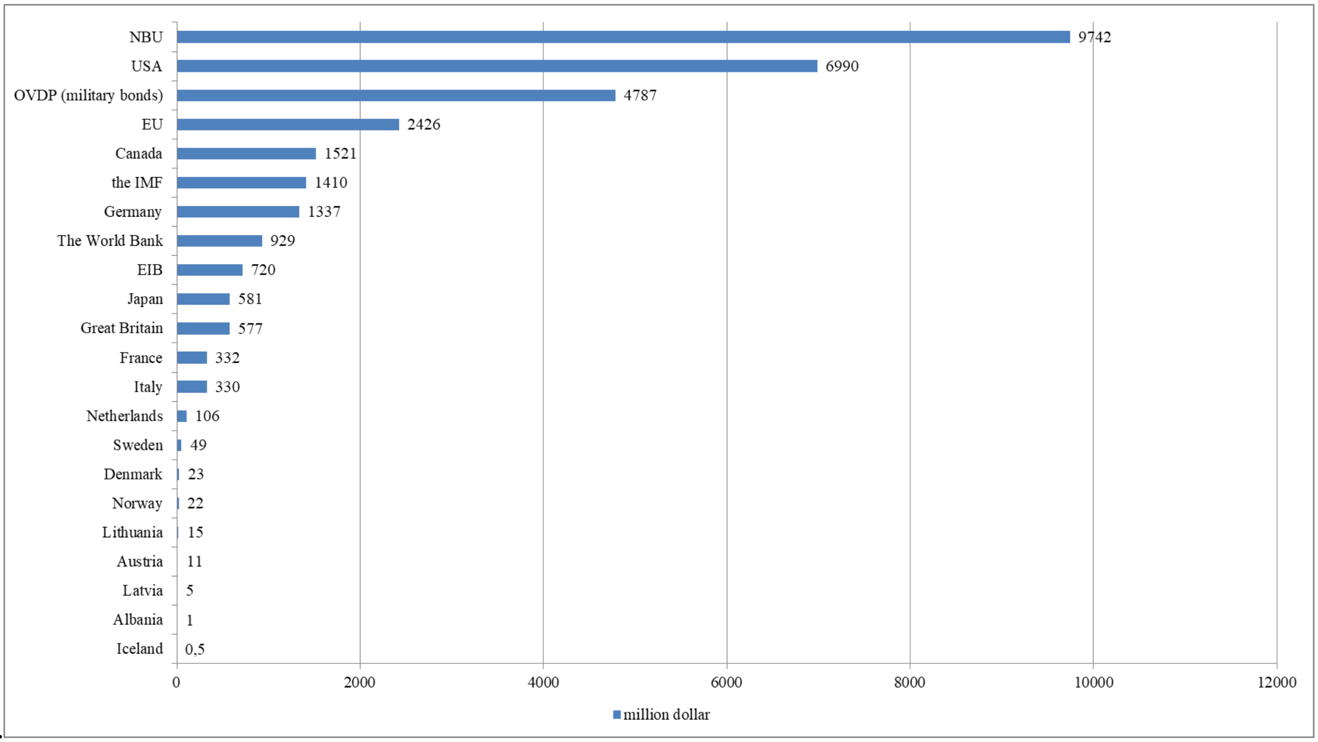
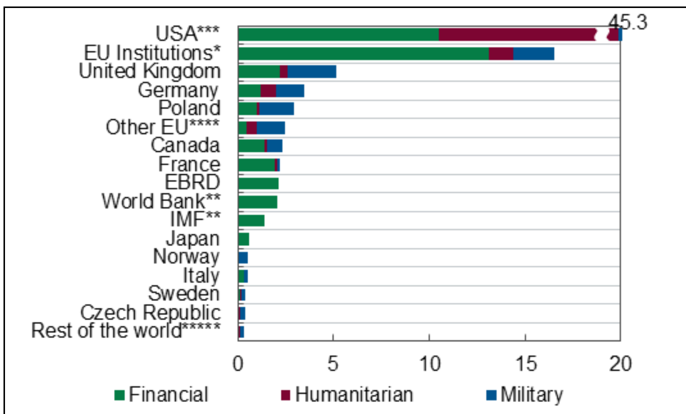
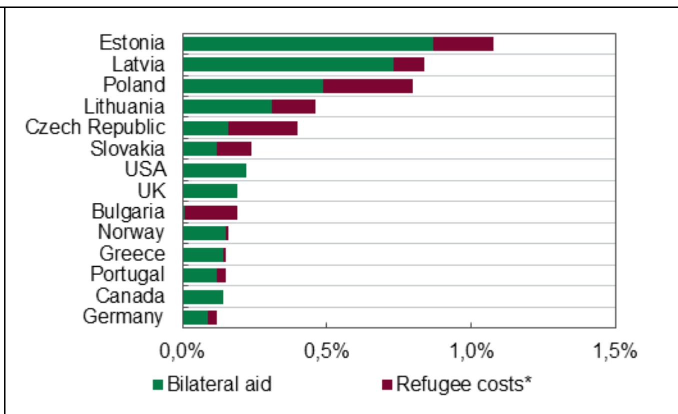


Fig. 2. Funding of the State Budget of Ukraine since the beginning of the full-scale war (as of September 1, 2022)
Source: Ministry of Finance of Ukraine, URL: https://www.me.gov.ua/?lang=uk-UA

Ukraine has already received about $19.4 billion in financial support from foreign partners since February. At the same time, financing as of June 1, 2022 was distributed in the structure shown in Fig. 3, on the left side of which are data on absolute payments, on the right - the share of support in relation to the GDP of each country. The most significant support for the second indicator was received from the governments of Estonia, Latvia, Poland and Lithuania.





Committed official assistance from partners, from end-January through 7 June, USD billions	Countries providing the most support to Ukraine in terms of their own resources, % of the GDP of the country

Fig. 3. Committed official assistance from partners
Source: Report on the financial stability of the NBU

INSIGHTS INTO REGIONAL DEVELOPMENT
ISSN 2669-0195 (online) https://jssidoi.org/ird/
2023 Volume 5 Number 1 (March)
http://doi.org/10.9770/IRD.2023.5.1(1)

In particular, it follows from open sources that by the end of August, Lithuanian military assistance to Ukraine alone will amount to more than 120 million euros, and the total amount of support - economic, financial, humanitarian, including assistance to refugees - will cross the threshold of half a billion euros (Lithuania, 2022). The Government of Lithuania also approved a €10 million assistance package for the reconstruction of Ukraine (Government of Lithuania, 2022).

From international financial organizations and the EU, Ukraine receives concessional loans and grant funding on a non-repayable basis to support the budget of Ukraine during the war. International support funds were directed to the general fund of the State Budget of Ukraine to ensure priority social, humanitarian, health care costs, and support for internally displaced persons. According to the Ministry of Finance (Minister of Finance, 2022), at least half of government spending in the coming months will be covered by external borrowing and grants. By the end of this year, the government expects to receive another €5 billion from the EU, $4.5 billion from the United States of America and $1.3 billion from the IMF (Minister of Finance, 2022). Dynamics of individual expenditures and their share in the budget of Ukraine for 2014–2022 is given in Table 4.

Table 4. Dynamics of functional expenses of the State Budget of Ukraine in 2014-2022, UAH million

	12.2014	12.2018	12.2019	12.2020	12.2021	06.2022
Budget expenditures	430217	985851	1075122	1127944	1490258	1036725
Defence spending	27363	97024	106627	120374	127527	334118
Defence expenditure, %	6,34	9,81	9,91	9,28	8,56	32,23
Spending on the economy	34410	63600	72364	168990	180980	26163
Economy in expenses, %	8,00	6,45	6,73	14,98	12,14	2,51
Expenditures on social protection	80558	163865	218628	322720	333280	210372
Social protection in expenditures, %	18,72	16,62	20,34	28,61	22,36	20,27

Source: Compiled according to NBU data. Available: https://bank.gov.ua/

As the data in Table. 4, funding for defense spending in 2022 increased by 23.67 p.p. against the level of 2021 and by 25.89 p.p. against the level of 2014 (Leontovych, 2022).

Table 5. Main macro-indicators of economic and social development of Ukraine for budget planning

Indicators	2021 report	2022 plan	2023 forecast
Nominal gross domestic product, billion UAH	5459,6	4688,0	6371,3
Real gross domestic product, growth rate, %	103,4	66,9	102,5
Consumer price index, %	110,0	131,5	130,0
Producer price index, %	162,2	135,6	135,0

Source: Ministry of Finance (2022)

In particular, clause 7 Budget plan 2023-2025 (Ministry of Finance, 2022) defines national security and defense expenditures for the general fund for 2023, based on the expected forecast of cash expenditures for 2022, taking into account the savings in funds for 2023 as a result of updating payments monetary security, provided for by the Government Decree No. 168 dated February 28, 2022.

ISSN 2669-0195 (online) https://jssidoi.org/ird/
2023 Volume 5 Number 1 (March)
http://doi.org/10.9770/IRD.2023.5.1(1)

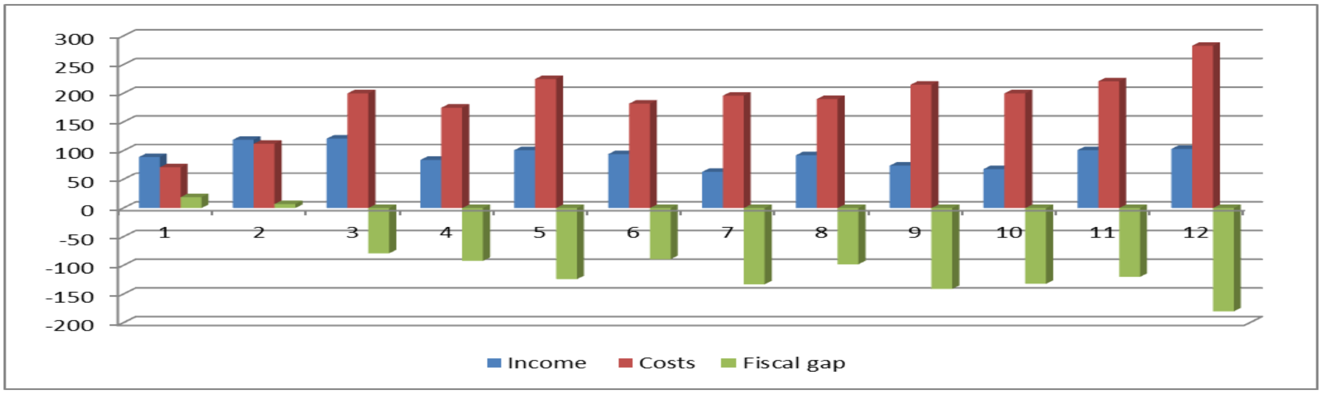


Fig. 4. Expected dynamics of the State Budget of Ukraine in 2022, UAH billion

Source: Kuhar (2022)

Prospects for the post-war recovery of the Ukrainian economy and investment priorities (Kuhar, 2022) predict that the cumulative fiscal gap in the budget of Ukraine in 2022 will be 1.2 UAH trillion (USD 35 billion), Fig. 4.

While the optimal mix of funding sources is often a matter of long-term considerations, the short-term macroeconomic implications of war financing are now important for Ukraine (Horodnichenko, & Talavera, 2022). An analysis of the impact of shocks of the macroeconomic environment on budgetary indicators for each of the shocks is presented in Table 3. This estimate is a preliminary-oriented calculation of the impact of only changes in real GDP on the budget revenues without taking into account the impact of other factors based on the value of elasticity coefficients for each type of income in terms of GDP calculated for Ukraine for the period 2004-2016 (*Fiscal risk information, 2022*).

Table 6. Effect of changes in budget indicators in 2022 in case of materialization of risks in the macroeconomic environment, UAH bln

Variables	Increasing threats to the national economy from the rf	Exit of non-residents from OVDP	Curtailment of foreign investments	Low credit activity of banks	Insolvency of subjects of economic activity	Low yields
Budget revenues	2,4	-1,2	-8,5 -	1,2	-1,1	-8,5
Personal income tax	-0,6	-0,3	-2,0	-0,3	-0,2	-2,0
VAT on imports	-0,9	-0,5	-3,3	-0,5	-1,1	-3,3
Income tax	-0,5	-0,2	-1,6	-0,2	-0,2	-1,6
Import duty	-0,1	-0,1	-0,4	-0,1	-0,1	-0,4
Excise	-0,2	-0,1	-0,8	-0,1	-0,1	-0,8

Source: calculations of the Ministry of Finance of Ukraine. Fiscal risk information (2022)

According to the Ministry of Economy of Ukraine (Information on Fiscal Risks, 2022), the following fiscal risks will exist in the current year and 2023 that will affect the state of public finances:

• the uncertainty of the duration and intensity of the military conflict, which may result in an increase in human losses and subsequent forced migration of the population, a significant decrease in the volume of foreign trade, continued destruction of important infrastructure facilities, an increase in losses in economic and production potentials, an increase in the costs of industrial logistics, a decrease in the level of their competitiveness and investment attractiveness;

• the lack of financial assistance from international financial organizations and donor countries can lead to additional money emission, reduction of budget expenditures, respectively, consumption of the general

ISSN 2669-0195 (online) https://jssidoi.org/ird/
2023 Volume 5 Number 1 (March)
http://doi.org/10.9770/IRD.2023.5.1(1)

government sector, reduction of budget support for business, which will have a negative impact on both the volume of demand in the economy and the volume of production, which will affect the price dynamics;
• non-compliance with the agreement reached on the unblocking of three ports on the Black Sea by the russian federation, which will lead to a decrease in foreign trade and may provoke a global food crisis;
• a significant reduction in full-time employees in the public administration can lead to an increase in unemployment, additional temporary pressure on the payroll of public institutions through significant short-term cash payments to employees, the outflow of highly intelligent labor force abroad, and a shortage of human capital;
• obtaining a lower yield of grain crops due, in particular, to crop losses due to the destruction by the aggressor country of both crops in the fields and places of storage of the harvested crop, which will lead to a decrease in the export capacity of the agricultural sector and, accordingly, foreign exchange earnings from exports, a decline in production in the processing industry, a shortage of food products in the domestic market and an increase in consumer prices for food products, which occupy a significant share in the consumer basket;
• non-sale of objects of large and small privatization due to lack of demand due to the deterioration of the investment climate in the country as a result of the aggression of the russian federation;
• the unfolding of the global economic crisis ("debt bubble") may lead to an additional drop in prices for export raw materials, a reduction in production, a decrease in the number of jobs, an appreciation of the US dollar, etc.

The Draft State Budget for 2023 (Draft State Budget for 2023) is built on the basis of a macroeconomic forecast that provides for nominal GDP growth of 37% (real growth rate - 4.6%, deflator - 30.7%). Despite the high growth rates of nominal GDP, the projected budget revenues for 2023 (excluding grants) are 10% less than the planned figures for 2022.

In the draft State Budget for 2023 (Draft State Budget 2023), support for defense capacity remains a priority, and total defense spending will exceed UAH 1.1 trillion, which is 40 times higher than in 2014. Almost all taxes and non-tax revenues collected by the state will be used for these purposes. Ukraine plans to raise funds from foreign partners to finance other expenses.

In 2020, fiscal security turned out to be the most vulnerable, demonstrating a drop from over 70% in 2019 to 40% in 2020. Since then, the situation has only worsened, and there are no data for a reliable calculation of 2021 and Q1 2022 yet, and we have established based on review of open data and their interpretation. Financial security over the same period decreased from 42% to 40%, which was facilitated by the timely implementation of security measures for the Government at the NBU. The calculated individual sub-indices (Marko, Radchenko, Melnichuk 2021) of financial security are shown in Table. 7.

Table 7. Selective indicators of financial security of Ukraine for 2013-2022, %

Indicators	Value of indicators by year									
	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022*
Bank security	53	29	19	23	35	38	43	44	46	28
Security of the non-banking market	49	46	34	32	30	31	32	30	27	16
Debt security	65	37	36	51	59	60	63	41	40	12
Budget security	58	56	64	62	64	65	67	43	47	36
Currency security	44	26	36	38	40	42	50	48	51	28
Monetary and credit security	59	70	46	69	65	59	56	61	59	32
Financial security	**50**	**40**	**35**	**38**	**40**	**43**	**42**	**40**	**42**	**24**

** preliminary forecast, due to the lack of macroeconomic statistical data*

Source: compiled according to the data of the Ministry of Economy, 2022

INSIGHTS INTO REGIONAL DEVELOPMENT
ISSN 2669-0195 (online) https://jssidoi.org/ird/
2023 Volume 5 Number 1 (March)
http://doi.org/10.9770/IRD.2023.5.1(1)

There is a decrease in financial security sub-indices for all components. By the end of 2020, the most stable sub-indicator was monetary and foreign exchange security; the level of budgetary and debt security, as well as the security of the non-banking sector, significantly decreased. However, it should be noted that the calculation of the summary values of the sub-indices is carried out on the basis of a normative assessment and a smoothing constant, which is determined separately for each indicator by an expert, which reduces the reliability of the calculations and reveals significant disagreements in various scientific sources, even those that are taken as the basis for calculations.

Since the basic criteria of the Concept were adopted long before the hybrid (2014) and full-scale (2022) wars, it is necessary to form its new principles in connection with the current practice of financing under the legal regime of martial law.

According to experts, the total need for financing the recovery of the Ukrainian economy will be about USA 1 trillion.

Fig. 5. Approximate structure of financing sources for the economic reconstruction of Ukraine USA billion

Source: Danylyshyn (2022)

The challenges that Ukraine is now facing need to strengthen the state's ability to carry out stabilization measures. And this is possible only with an increase in the share of the state in the economy. This indicator is calculated as the share of expenditures in the State budget for government activities in relation to the gross product. The calculation of the indicator is given in Table 8.

Table 8. Dynamics of the indicator of the share of the state in the economy 2014-2022, UAH billion, %

	8.2022	12.2021	12.2020	12.2019	12.2015	12.2014
Budget expenditures: *State functions*	129	206	164	168	103	68
Defense	533	127	120	106	52	27
Economy	33	180	169	72	37	34
Total:	1450	1490	1288	1075	576	430
GDP	745	5460	4194	3974	1979	1568
Share of state expenditures in GDP, %	17	38	39	42	52	43

Source: compiled according to the data of the Ministry of Economy (2022)

ISSN 2669-0195 (online) https://jssidoi.org/ird/
2023 Volume 5 Number 1 (March)
http://doi.org/10.9770/IRD.2023.5.1(1)

Empirical evidence unequivocally proves that countries with a low state share are more vulnerable to extraordinary shocks and sovereign debt crises (Danylyshyn, 2022).

To build a strategy for post-war recovery, the World Bank, the government of Ukraine and the European Commission presented an analytical report "The Rapid Damage and Needs Assessment (RDNA)" (The Rapid Damage, 2022), which draws conclusions about the losses of Ukraine from the war and determines the country's needs for reconstruction and restoration.

Conclusions

During the period of the russian-Ukrainian war, national security is the main guideline of state policy in the financial sector. The growth of risks and threats to national security necessitates financial instruments to stay ahead of challenges.

Significant losses of the Ukrainian economy from the war, already exceeding the level of GDP in 2021, need state regulation and equalization through financial instruments, primarily banking and budgetary areas, according to the components of national indicators of financial security. The indicators of the financial security of the state for the period of hybrid and military aggression of the russian federation (2013-2021) were assessed, and according to open sources of data, which are rather limited, a forecast of these indicators for 2022 was made. From 50% in 2013, financial security has dropped to 24% in 2022.

An analysis of the state's share in the economy testifies to the possibility and speed of responding to threats to national security. The higher this indicator, the greater the share of the state in the economy and, accordingly, the higher the possibility of regulation, especially in times of crisis. For Ukraine, this share was 43% in 2014 and decreased to 17% in 2022 (according to preliminary data).

Thus, the war has a colossal destructive effect on the economy of Ukraine and the whole world, it is even important to trace the real losses. The damage affects investment, trade and the financial market, the level of GDP growth, external debt balances, the redistribution of exports and imports, and all these components are related to budget planning. However, in spite of everything, the budget of the legal regime of martial law should harmonize revenues and expenditures, focusing primarily on vital items for the preservation of the state, population, and economy.

In general, the financial system of Ukraine in a short time managed to organize financial flows in accordance with the needs of ensuring national security, form an optimal balance of resources, maintain the volume of financing of basic budget expenditures, attract donor resources and resist the inevitable decline of the economy during the war. This state was achieved thanks to the help of donor countries, in particular, Latvia.

Measures of financial regulation of national security in a state of martial law are reduced to promoting the preservation and stabilization of critical areas, primarily the defense sector and social spending.

The state's ability to finance defense and other areas depends on the speed of economic recovery and Ukraine's integration into the European economic space. Among the sources of filling the budget, international aid prevails and, to a lesser extent, tax revenues. To this end, measures are being taken to stimulate the attraction of international borrowing and domestic demand for services, the resumption of entrepreneurship, and the promotion of doing business.

In the geostrategic perspective, the national security of Ukraine depends on the ability to balance between the world centers of power and finance and has the need to develop in accordance with the chosen guidelines of strategic partnership.

References

Behnassi, M., & Haiba, M. (2022). Implications of the Russia–Ukraine war for global food security. *Nature Human Behaviour*, pp. 1-2. https://doi.org/10.1038/s41562-022-01391-x

Benton, T. G., Froggatt, A., Wellesley, L., Grafham, O., King, R., Morisetti, N., & Schröder, P. (2022). The Ukraine war and threats to food and energy security. Chatham House-International Affairs Think Tank. Retrieved from: Retrieved from: https://www.chathamhouse.org/sites/default/files/2022-04/2022-04-12-ukraine-war-threats-food-energy-security-benton-et-al.pdf

Buti, M., & Messori, M. (2022). The role of central fiscal capacity in connecting the EUs domestic and global agendas, http://hdl.handle.net/1814/74593

Danylyshyn B. (2022). Ukraine's resources for financial stability during war and reconstruction Retrieved from: https://www.epravda.com.ua/rus/columns/2022/04/22/686099/ [In Ukrainian].

Decree of the President of Ukraine «On the introduction of martial law in Ukraine» dated February 24, 2022 No. 64/2022. Retrieved from: https://www.president.gov.ua/documents/642022-41397 [In Ukrainian].

Demianyshyn, V., & Lobodina Z. (2020). Rozvytok finansovoho mekhanizmu v umovakh reformuvannia finansovoi systemy Ukrainy [Development of the financial mechanism under the conditions of reforming the financial system of Ukraine]. Formuvannia rynkovoi ekonomiky v Ukraini : zbirnyk naukovykh prats. Lviv: Lvivskyi natsionalnyi universytet imeni Ivana Franka, 43, pp. 59-80. [In Ukrainian]. https://doi.org/10.30970/meu.2020.43.0.3019

Draft Law on the State Budget of Ukraine for 2023 Retrieved from: https://itd.rada.gov.ua/billInfo/Bills/Card/40472 [In Ukrainian].

Dropa, Ya. B. (2017). Finansovi instrumenty formuvannia resursiv u natsionalnii ekonomitsi v umovakh hlobalizatsii [Financial instruments for the formation of resources in the national economy in the conditions of globalization*]. Hlobalni ta natsionalni problemy ekonomiky*, 16, pp. 682-687. [In Ukrainian].

Essa, N. K., & Jasim, A. A. (2022). Concept of financing Instruments. A Comparative study. *AL-Mouhaqiq Al-Hilly Journal for Legal and Political Science*, 14(2).

Glauben, T., Svanidze, M., Götz, L., Prehn, S., Jamali Jaghdani, T., Đurić, I., & Kuhn, L. (2022). The War in Ukraine, Agricultural Trade and Risks to Global Food Security. *Intereconomic*s, 57(3), 157-163. https://doi.org/10.1007/s10272-022-1052-7

Horodnichenko, Yu. & Talavera, O. (2022). Ukraine: Finances of war. Retrieved from: https://voxukraine.org/ukrayina-finansi-vijni/ [In Ukrainian].

Hryshchenko, I. M., & Kovtun, T. Yu. (2022). Derzhavna pidtrymka biznesu u voiennyi chas [State support for business during wartime]. Vcheni zapysky TNU imeni V.I. Vernadskoho. Seriia: Publichne upravlinnia ta administruvannia, 33(72), 2, pp. 29-36. [In Ukrainian]. https://doi.org/10.32838/TNU-2663-6468/2022.2/06 [In Ukrainian].

Information on fiscal risks (including contingent liabilities and quasi-fiscal operations) and their impact on state budget indicators in 2023. Retrieved from: http://surl.li/dirhd [In Ukrainian].

International Monetary Fund. Retrieved from: https://www.imf.org/en/Home

Johnson, C. L., Luby, M. J., & Moldogaziev, T. T. (2021). State and local financial instruments: Policy changes and management. Edward Elgar Publishing. https://doi.org/10.4337/9781800370937

Kachynsky A.B. (2013). Indicators of national security: definition and application of their limit values: monograph. K.: NISD, 104 p.

Karakuts A., Hordiychuk D., Shchedrin Y. (2022). Agricultural business, metallurgists, IT, chemistry and others: how are the giants of the Ukrainian economy doing. Retrieved from: https://www.epravda.com.ua/publications/2022/06/6/687837/ [In Ukrainian].

Khalatur, S., Stachowiak, Z., Zhylenko, K., Honcharenko, O., & Khalatur, O. (2019). Financial instruments and innovations in business environment: European countries and Ukraine. *Investment Management and Financial Innovations*, 16(3), 275-291. https://doi.org/10.21511/imfi.16(3).2019.25

Kharlamova G. (2019). Assessment of the stability of national security: new frameworks for analysis. *Economist*, 2. http://ukraine2030.org/uk/blog/view/175-Ocinka-stabilnosti-nacionalnoyi-bezpeki-novi-ramki-dlja-analizu [In Ukrainian].

Kuhar, M. (2022). Prospects for the post-war recovery of the Ukrainian economy and investment priorities. Retrieved from: http://surl.li/cvhia [In Ukrainian].

Kvasnytsia, O., Nekliudova, T. (2020). Vdoskonalennia finansovoho mekhanizmu rozvytku ahrarnoho sektoru [Improvement of the financial mechanism for the development of the agrarian sector]. *Svit finansiv*, 3(64), 139-152. [In Ukrainian]. https://doi.org/10.35774/sf2020.03.139

Kyiv School of Economics. Retrieved from: https://kse.ua/ua/ [In Ukrainian].

Lakatos, E., & Arsenopoulos, A. (2019). Investigating EU financial instruments to tackle energy poverty in households: A SWOT analysis. *Energy Sources, Part B: Economics, Planning, and Policy*, 14(6), 235-253. https://doi.org/10.1080/15567249.2019.1667456

Leontovych, S., Semenyshena, N., Kirian, S. (2022). Budget important regulations of the economy Ukraine in military conditions: Current issues of security management during martial law: scientific monograph. Košice: Vysoká škola bezpečnostného manažérstva v Košiciach, pp. 115-129. https://doi.org/10.5281/zenodo.7231597

Lithuania will provide Ukraine with a new package of military aid. Retrieved from: https://www.ukrinform.ua/rubric-ato/3592173-litva-nadast-ukraini-novij-paket-vijskovoi-dopomogi.html [In Ukrainian].

Luchyk, M.V. Luchyk, V.E. Nikitin, A.V. (2018). Assessment and forecast of the level of economic security of the regions of Ukraine. *Regional Economics*, III(71), 47-53. [In Ukrainian].

Marchenko S. at IMC2022: Financial policy and economic stability in recent years helped to cope with the first consequences of the war. The Ministry of Finance of Ukraine, published on September 12, 2022. Retrieved from: http://surl.li/dieul [In Ukrainian].

Marko I.Yu., Radchenko O.D., Melnychuk O.O. (2021). Financial risks of budget security and their state regulation. *Ekonomika APK*, 8, 67-73. https://doi.org/10.32317/2221-1055.202108067 [In Ukrainian].

Ministry of Finance of Ukraine. Information on fiscal risks and their impact on state budget indicators in 2022 https://mof.gov.ua/

Mullins, M., & Murphy, F. (2009). Financial globalisation, state autonomy and modern financial instruments: the case of Brazil. *Globalizations*, 6(4), 433-449. https://doi.org/10.1080/14747730903298645

Nakamura, L. (2014). Durable financial regulation: monitoring financial instruments as a counterpart to regulating financial institutions. In Measuring Wealth and Financial Intermediation and *Their Links to the Real Economy*, (pp. 67-88). University of Chicago Press.

Nechyporenko O. (2022). Agriculture during the war: changing priorities .Retrieved from: http://surl.li/dirsk [In Ukrainian].

Nyikos, G. (2016). Financial instruments in the 2014-20 programming period: First experiences of member states.

Order of the Ministry of Economic Development and Trade of Ukraine "On Approval of Methodological Recommendations for the Calculation of the Level of Economic Security of Ukraine" No. 1277 of October 29, 2013. Retrieved from: https://zakon.rada.gov.ua/rada/show/v1277731-13#n121 [In Ukrainian].

Petrukha, S. V., Petrukha N. M., and Krupelnytska O. L. (2022). Sustainable development goals and triggers for the government finance modernization. Publishing House “Baltija Publishing”, pp. 252-263. https://doi.org/10.30525/978-9934-26-223-4-33

Report on the financial stability of the NBU. Retrieved from: https://bank.gov.ua/ua/stability/report [In Ukrainian].

Review of the non-banking financial sector, September 2022. Retrieved from: http://surl.li/dhzvh [In Ukrainian].

Shaleny, V., Shtefan, N., Krylova, O., Myronchuk, V., & Tsurkan, I. (2022). On the question of financial support for business during the war (Ukrainian case). *Amazonia Investiga*, 11(54), 232-242. https://doi.org/10.34069/AI/2022.54.06.22

The Lithuanian government approved a 10 million euro aid package for the recovery of Ukraine Retrieved from: https://www.eurointegration.com.ua/news/2022/07/12/7143017/ [In Ukrainian].

The Minister of Finance named the amount of international aid to Ukraine until the end of the year Retrieved from: https://www.rbc.ua/rus/news/ministr-finansiv-nazvav-sumu-mizhnarodnoyi-1665557089.html [In Ukrainian].

The Rapid Damage and Needs Assessment (RDNA). Retrieved from: http://surl.li/dirxa

The Concept of ensuring national security in the financial sphere. Decree of the Cabinet of Ministers of Ukraine dated August 15, 2012 No. 569. Retrieved from: https://zakon.rada.gov.ua/laws/show/569-2012-%D1%80#Text [In Ukrainian].

Tulush, L. D., Leontovych, S. R., & Radchenko, O. D. (2022). State regulation of financial security under military conditions. The Russian-Ukrainian war (2014–2022): historical, political, cultural-educational, religious, economic, and legal aspects: Scientific monograph. Riga, Latvia: "Baltija Publishing", pp. 331-338. https://doi.org/10.30525/978-9934-26-223-4-41

Tytarenko, L., & Yatsenko, V. (2022). State policy directions in the face of war challenges. *Scientific Journal of Polonia University*, 52(3), 196-203. https://doi.org/10.23856/5224

Wishlade, F., & Michie, R. (2014). Financial instruments in 2014-20: learning from 2007-13 and adapting to the new environment. *European Policies Research Centre*, University of Strathclyde.

Wyrwa, J. (2020). A review of the European Union financial instruments supporting the innovative activity of enterprises in the context of Industry 4.0 in the years 2021-2027. *Entrepreneurship and Sustainability*. Issues, 8(1), 1146. https://doi.org/10.9770/jesi.2020.8.1(77)

Author Contributions: Conceptualization: *author, author*; methodology: *author, author*; data analysis: *author, author*, writing—original draft preparation: *author, author*, writing; review and editing: *author, author*; visualization: *author, author*. All authors have read and agreed to the published version of the manuscript.

Oksana RADCHENKO
ORCID ID: https://orcid.org/0000-0003-4892-7764

Leonid TULUSH
ORCID ID: https://orcid.org/0000-0002-3922-5245

Serhii LEONTOVYCH
ORCID ID: https://orcid.org/0000-0002-0393-1869