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## Investment activity in Ukrainian agriculture during the war: New challenges and threats

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► **Abstract.** Investment activity is an important condition for the effective functioning and development of the agricultural economy. Investments enable entrepreneurs to achieve the desired business results and complete their strategic goals. Since the beginning of Russia's invasion of Ukraine, agricultural producers have faced new challenges and threats, and have had to adapt to the new conditions. The purpose of this study was to investigate the impact of the war on Ukrainian agriculture and to identify new risks and dangers for investment activity in agriculture during the war. The study used the dialectical method of scientific cognition, analysis and synthesis, systematic generalisation, comparative analysis, as well as objective-historical, inductive, deductive methods, heuristic method of generating solutions, and the method of targeted substantiation. The study examined the trends in the development of investment activity in the agricultural sector of the Ukrainian economy in the pre-war period and during the war. The challenges and threats to agriculture caused by Russian aggression were identified. The study identified the main issues of investment activity of agricultural producers in the context of the full-scale invasion of the Russian Federation, suggested solutions to overcome these issues and vectors of support for agriculture during the war and in the post-war period of the country's recovery. The study considered the destructive processes in the system of functioning of the agrarian economy of Ukraine in the pre-war period and substantiated measures to overcome them. Priority areas of investment support to ensure sustainable development of the agrarian economy and rural areas were identified. The key guidelines for the development of the agricultural sector of the Ukrainian economy were substantiated. The conclusions, proposals, and practical recommendations can be used to develop corresponding programmes and measures aimed at supporting agricultural producers during the war and in the post-war period of national economic recovery

► **Keywords:** food security; risk; insecurity; financial support

### ► Introduction

The full-scale war with the Russian Federation has led to numerous challenges and threats that have affected Ukrainian agriculture. The war also exacerbated pre-war risks, which had an adverse impact on the investment activity of agricultural producers. A challenge is defined as a certain state of tension that arises within a system and cannot be resisted. Therefore, certain actions are required to avoid negative consequences due to the impact of certain challenges. In a broad sense, challenges can indicate the need for certain positive changes. A threat, on the other hand, is a real event in which a danger can become a reality. Many of today's food crises are linked to war and violent conflict. B. Kemmerling *et al.* (2022) developed

four aspects of war that affect food insecurity: a) destruction; b) conflict-induced displacement; c) food control; and d) famine as a "weapon of war".

Russia's military aggression has become the main negative factor affecting Ukraine's investment climate. The operating environment for agricultural enterprises has become substantially more difficult. Yu. Nikolchuk & O. Lopatovska (2023) investigated the issue of Ukraine's investment attractiveness and the search for ways to intensify investment activity during martial law. Investments are a key element of economic activity and an essential factor in the growth and development of both individual industries and the entire country. The problems of

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investing in the agricultural sector of Ukraine's economy have been the subject of research by many scholars who consider this process in various aspects and manifestations. M. Kryshchanovych (2020) studied the specific features of the development of investment activity in agriculture of Ukraine. He believes that an important way to increase the effectiveness of investment activity in agriculture is to stimulate innovation activity, which can be ensured by formulating an innovative economic policy at the state level.

I.O. Kryukova (2021), investigating investment trends in Ukrainian agriculture in the context of European practice, substantiates the importance of investing in innovation to improve the performance of agribusiness. Ensuring equal opportunities and conditions for investment activities for all categories of agricultural producers is an important condition for inclusive development of agriculture and rural areas. S. Stepanenko (2023) assesses the current state of investment support for business entities in the agrarian sector of the Ukrainian economy from the standpoint of the possibilities of ensuring their inclusive development. The level of investment in agriculture in Ukraine directly affects both national food and economic security and global food security. L. Artemenko *et al.* (2023) considered the problems of ensuring food security in Ukraine in the context of military aggression.

T. Ben Hassen & H. El Bilali (2022) studied the direct and indirect impact of the Russian-Ukrainian war on global food security. P. Berkhout *et al.* analysed the possible consequences of the war in Ukraine for food security in the short term. E. Krasznai Kovács *et al.* (2022) identified some of the immediate impacts and long-term challenges of the war in Ukraine on food security and production systems in Eastern Europe. K.A. Abay *et al.* (2023) find that while absolute food security may still be higher in rural areas where there are many poor households, urban poor people are likely to be most affected by the Russia-Ukraine war and the associated food price increases, especially in countries where social protection and food subsidies are unavailable.

In the context of the war, which is characterised by cruelty, large-scale destruction and loss of life, all business entities in Ukraine operate in a changing environment, constantly facing destructive factors. Uncertainty, unpredictability, insecurity, and instability in the environment give rise to new challenges, risks, and dangers. The purpose of this study was to assess the conditions of functioning of the agricultural business in Ukraine during the war, to identify problems affecting investment activity and to substantiate promising areas of agricultural development.

### ► Materials and Methods

The theoretical framework of this study included the research of Ukrainian and international scholars. The sources of information used in the study are statistical data from the State Statistics Committee of Ukraine (Economic statistics..., n.d.; Capital investments..., n.d.; Indexes of agricultural..., n.d.); information materials of the Ministry of Agrarian Policy and Food of Ukraine (Kherson plant for..., 2023; Only state sturgeon..., 2023), which contain reports on the consequences of the explosion of the Kakhovka hydroelectric power plant (HPP). The source of information on state support for the agro-industrial complex (AIC) in 2023 is the Law of Ukraine No. 2710-IX "On the State Budget of Ukraine for 2023" (2022).

The study used the results of a survey of foreign investors conducted by the Centre for Economic Strategy (The survey of foreign investors, 2019), a survey of 102 CEOs conducted by the European Business Association (Investment attractiveness index..., 2022), and a nationwide survey of 5200 rural households conducted by the Food and Agriculture Organization (FAO) of the United Nations (UN) (FAO, 2022). Furthermore, the study contains expert opinions (KSE Agrocenter, 2023). The study also used reliable sources of information on the Internet, including information on important events that took place in Ukraine during the war (Tarasovskyi, 2023; Murashko, 2023) and information on the amount of financial support for the development of the agricultural sector in 2023 (Support for agriculture..., 2023).

General scientific research methods were used to fulfil the purpose of this study and complete the tasks, including a more profound understanding of the problems of investment activity in agriculture in Ukraine during the full-scale war with the Russian Federation. The study is based on the application of the dialectical method of cognition of reality, which helps to consider agriculture in Ukraine in a systemic context. The use of this method helped to systematically analyse processes and phenomena in the agricultural sector, considering their interconnections and interdependencies. Using such theoretical research methods as observation, abstraction, analysis, comparison, and generalisation, the study reviewed the literature, analysed the world practices of agricultural producers, and the main vectors of agricultural, specifically investment, policy in the European Union and Ukraine. The comparison method helped to identify similarities and differences in opinions, approaches and practical actions regarding models of agricultural development, operating conditions, and support measures in Ukraine and other countries.

A comparative analysis of the economic performance of agricultural enterprises in different periods was used to find the cause-and-effect relationships in Ukrainian agriculture and to identify problems and challenges during the war, to establish regional imbalances and to outline trends in the development of investment activity in the agricultural sector. Using the objective historical method, the study found regularities in individual facts of the manifestation of the war in Ukraine and, on this basis, identified new challenges and dangers for agriculture.

Based on the analysis of theoretical and empirical results of the study of investment activity in agriculture in Ukraine in 2010-2022 and using the methods of analogy, comparison, and synthesis, the main provisions of the study were systematised, which became the basis for forming conclusions. The inductive method was used to summarise certain observations, facts, and specific features of agricultural activities in Ukraine during the war. The deductive method was used to identify the challenges and dangers in Ukrainian agriculture during the war as a result of building a logical chain of reasoning based on general information. Using the heuristic method of generating solutions and the method of targeted substantiation, practical recommendations were offered regarding the vectors of investment support for agriculture in Ukraine and ways of its development.

### ► Results and Discussion

Investment activities involve the investment of capital with the purpose of generating a profit, and therefore

always involve the risk of uncertainty of the final results of business activities, possible loss of capital or receipt of less than expected income. Due to the war in Ukraine caused by Russia, the external environment is becoming increasingly unpredictable, unstable, and volatile. Risks are rising, new challenges and threats are emerging, and there are dangers of losing not only business and wealth, but also health and life.

The investment climate of the country and its regions directly affects business and is a principal factor in investment. According to a survey of foreign investors, before the start of the full-scale war, the main obstacles to investment in Ukraine were massive corruption; lack of trust in the judiciary; monopolisation of markets; armed conflict with the Russian Federation; repressive actions of law enforcement agencies; financial instability and fluctuations in the foreign exchange market (The survey of foreign investors, 2019).

The full-scale war with Russia has become the main negative factor affecting Ukraine's investment climate and the investment attractiveness of agribusiness. In the first half of 2022 alone, the investment attractiveness index decreased by 0.56 points to 2.17 out of 5. This is the lowest value since 2013 (Investment attractiveness index..., 2022). Due to the occupation of certain regions, active hostilities, rocket attacks, logistical problems and blockades, soaring resource prices and a decline in incomes and purchasing power, the investment environment is becoming increasingly unfavourable and risky.

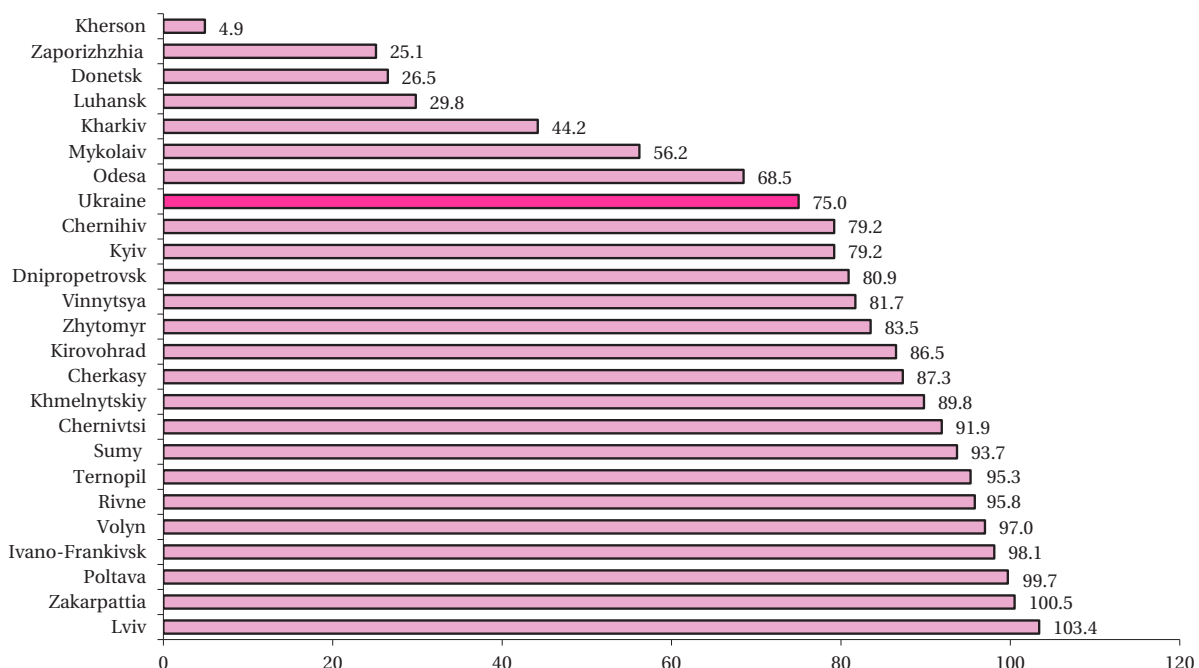
According to a survey of 102 CEOs conducted by the European Business Association, the main negative factors affecting Ukraine's investment climate include Russian military aggression, corruption, a weak judicial system, declining purchasing power, and logistical challenges (Investment attractiveness index..., 2022). The war caused considerable damage to Ukrainian agriculture. The

occupation of Ukrainian territories, mining and destruction of production facilities make it difficult and sometimes impossible for businesses to operate.

Agricultural land was damaged and contaminated, perennial plantations, machinery, and equipment were destroyed, farms were destroyed, and livestock was lost. As of 2023, 470 000 hectares of agricultural land in Ukraine were mined. Of the 17.5% of mined areas surveyed, 57 000 hectares are agricultural land. More than 2600 sappers from state and private companies are carrying out demining. With this capacity, it would take over 20 years to demine agricultural land alone (Murashko, 2023).

Furthermore, the suspension of processing plants caused problems with livestock feed and sales of agricultural raw materials. The activities of agricultural producers are hampered by damage to rural infrastructure and transport networks. Repairing the damage requires considerable financial investments, and at the same time, the impact of the war continues to operate, leading to long-term adverse consequences. According to a nationwide survey of 5200 rural households conducted by FAO, a quarter of respondents reported that they had suspended or reduced agricultural production due to the war. The trend is intensifying in areas close to the hostilities. In Sumy, Dnipro, Odesa, Chernihiv, and Mykolaiv oblasts, this figure exceeded 40% of rural households surveyed (FAO, 2022).

The war caused a sharp drop in production volumes. During the first year of the full-scale invasion, agricultural production in Ukraine fell by a quarter. Kherson, Zaporizhzhia, Donetsk, Luhansk, Kharkiv, Mykolaiv, and Odesa oblasts were the most affected. In the Kherson Oblast, where agricultural production decreased by 95.1% in 2022 compared to 2021, the situation is catastrophic. Only in Lviv and Zakarpattia oblasts did agricultural production increase slightly (Fig. 1).



**Figure 1.** Agricultural production indices by region in 2022 (in constant 2016 prices; % of the previous year)

**Note:** data excludes the territories temporarily occupied by the Russian Federation and parts of the territories where military operations are (were) conducted

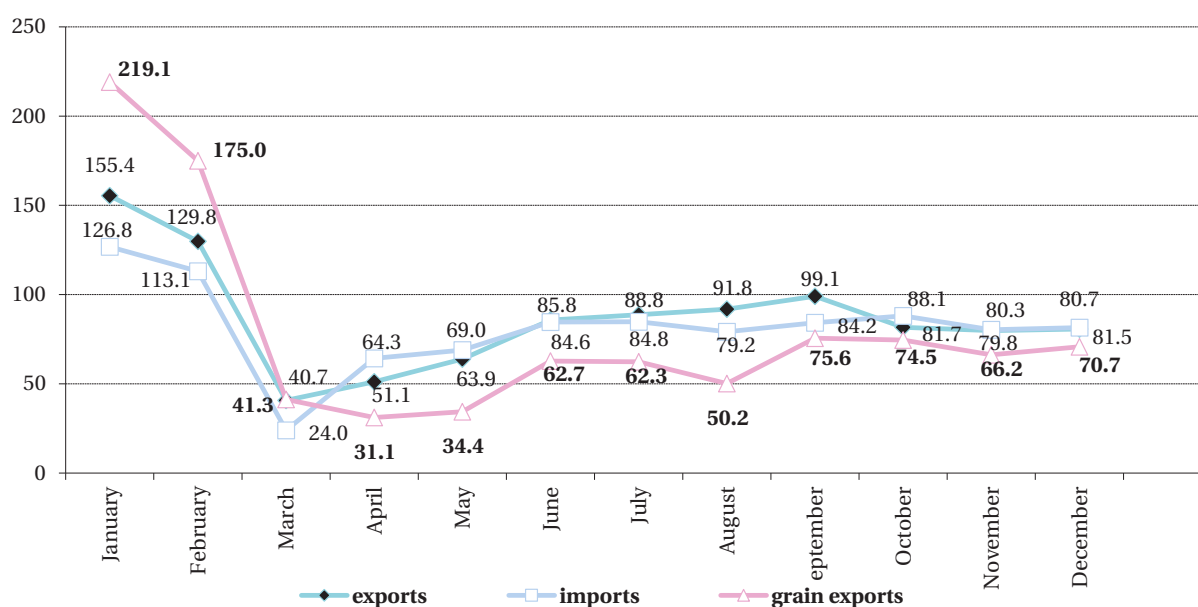
**Source:** compiled from Economic statistics/Economic activity/Capital investment (n.d.)

The physical vulnerability of agricultural producers, the destroyed or damaged infrastructure, disrupted logistics, shortages of many inputs such as fertilisers, seeds, fuel, and their rising prices create other problems and dangers. Direct losses in Ukraine's agricultural sector since the beginning of the war as of 24 April 2023 amount to USD 8.7 billion, while indirect losses, including reduced crop and livestock production, logistics disruptions and increased production costs, amount to an additional USD 31.5 billion. Therefore, USD 29.7 billion is needed to cover the reconstruction and rehabilitation needs (KSE Agrocenter, 2023).

The largest share of agricultural producers' losses (USD 4.65 billion) is due to the destruction and damage of agricultural machinery. In total, 109 600 pieces of agricultural machinery were damaged or destroyed during the war. Damage from the destruction and theft of agricultural products is estimated at over USD 1.8 billion. More than 4 million tonnes of agricultural products destroyed and stolen by the

occupiers were also recorded. Furthermore, the agricultural infrastructure has suffered considerable damage. Specifically, the capacity of the destroyed and damaged granaries is 8.2 million tonnes and almost 3.3 million tonnes, respectively. Experts estimate that USD 1.3 billion is needed to restore them (Tarasovskyi, 2023). The agricultural sector in Luhansk, Kherson, Donetsk, Kharkiv, and Zaporizhzhia oblasts suffered the most damage and losses.

The war, logistical problems, and the blockade of ports have had an adverse impact on foreign trade. Thus, in March 2022, exports of agricultural products and food products decreased by almost 60% and imports by 76%, respectively, compared to the same period in 2021. A sharp decline in grain exports (Fig. 2) and a lack of storage space have worsened the financial situation of agricultural producers. New security challenges have also directly or indirectly affected the global food market. The export crisis has threatened global food security.



**Figure 2.** Indices of foreign trade in agri-food products in Ukraine in 2022 (% to the corresponding period of the previous year)

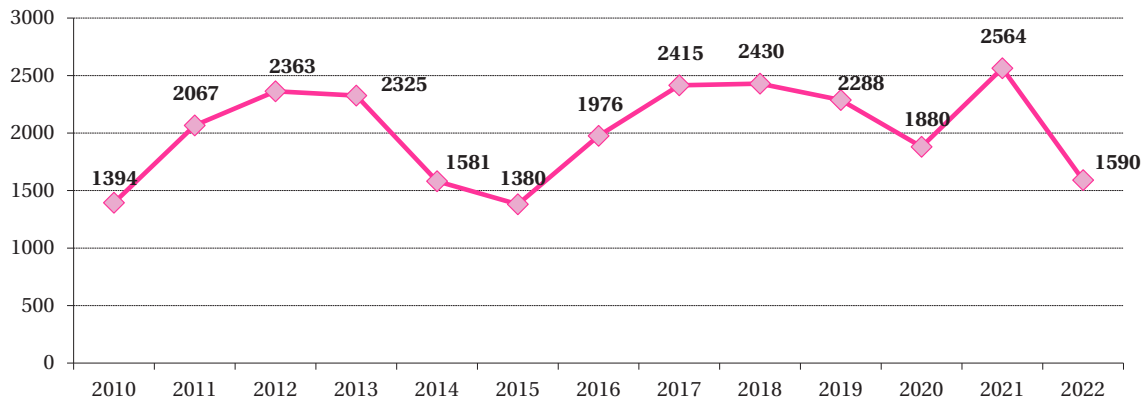
**Source:** compiled based on the author's calculations according to the Seasonally adjusted monthly volumes of the commodity structure of foreign trade (2021&2022)

According to the State Statistics Service, in 2019-2021, more than 90% of all capital investments in the agricultural sector of Ukraine were made at the expense of enterprises and organisations' own funds (Indexes of agricultural..., n.d.).

For many agricultural enterprises, especially small and medium-sized ones, internal resources for financing investments, such as profits and depreciation, are insufficient to ensure an effective process of extended production reproduction. The situation is catastrophic for businesses that have been completely or partially destroyed.

Due to the considerable losses and damages in Ukrainian agriculture, as well as the growing risks and dangers, a reduction in investment in agribusiness is most likely to be expected in the near future.

Given the significant deterioration in the financial condition of most agricultural enterprises due to the war, and given the new risks and dangers, investment activity in Ukrainian agriculture is becoming increasingly difficult. In the first year of the full-scale war with Russia, the volume of capital investments in agriculture, forestry and fisheries in Ukraine decreased by USD 973 million, or almost 40%, compared to the previous year. In 2022, the level of investment in the agricultural sector fell to the level of 2014. This is the largest decline in investment in agriculture in 2010-2022. Apart from 2022, a sharp decline in investment was observed in 2014 (the beginning of Russia's aggression in Ukraine) and in 2020 (the COVID-19 crisis). At that time, investment volumes decreased by USD 744 million and USD 408 million, respectively, compared to the previous 2013 and 2019 (Fig. 3).



**Figure 3.** Dynamics of capital investment in agriculture, forestry, and fisheries in 2010-2022, USD million

**Source:** compiled based on M. Guliyev & T. Azizov (2022)

The specific features of agriculture often make it virtually impossible to re-profile and relocate agricultural enterprises to remote regions away from the front line during martial law. Furthermore, numerous agricultural enterprises have suffered serious damage and destruction as a result of environmental violations caused by Russia. In addition, many farmers and rural residents have left the occupied territories and the regions where hostilities are taking place. Therefore, humanitarian, and financial aid is needed to resume operations. However, farmers who apply for financial aid from the state face excessive red tape, but as a result, support is often insignificant (Mamonova, 2022).

The impact of the war on the environment will be long-term due to the need to dispose of toxic waste that is dangerous to people and the environment. L. Deyneko (2022) warns about the threat to Ukraine's anthropogenic and environmental safety due to significant water pollution and, as a result, deterioration of drinking water quality. The explosion of the Kakhovka hydroelectric power station, which resulted in massive destruction of flora and fauna, human habitats, and ecosystems, is a global environmental disaster. This will not only radically change agriculture in southern Ukraine and other regions of the country. The countries of the Black Sea basin are also at risk. The Parliamentary Assembly of the Council of Europe (PACE) has already recognised the explosion of the Kakhovka hydroelectric power station as Russia's ecocide in Ukraine. Due to the dam's explosion, 94% of irrigation systems in Kherson, 74% in Zaporizhzhia and 30% in Dnipro oblasts were left without water (Economic consequences of..., 2023). Experts estimate that irrigation will not be possible in Kherson Oblast for 2-3 years.

The fishing industry also suffered significant losses. The only state-owned sturgeon farm in Ukraine has been flooded due to the explosion of the Kakhovka HPP. This endangers the reproduction of sturgeon populations, which have a special protection status, and may lead to the extinction of these relict fish species in Ukrainian waters. The consequences will be negative not only for the ecology of Ukraine, but also for other countries of the Black Sea basin (Only state sturgeon..., 2023). Furthermore, flooding threatens the Kherson Production and Experimental Fish Farm, which is located in the occupied territory. Due to the death of 95 000 tonnes of full-grown

fish alone, material losses will amount to about UAH 4 billion (Kherson plant for..., 2023).

The aggression of the Russian Federation has considerably complicated the functioning of agribusiness in Ukraine, including small, medium, and large agricultural enterprises. Specifically, the loss of logistical connections due to the hostilities has led to serious environmental disasters at numerous livestock farms and agricultural facilities. Limited access to the transportation of agricultural products across the Black Sea continues to be one of the main challenges for agribusiness. Therefore, the recovery of economic activity will require increased efforts and investments. At the same time, the war revealed other negative consequences of the agroholding model of agricultural development in Ukraine (Borodina, 2022). Large agricultural enterprises proved to be less resilient to the new challenges and dangers associated with the hostilities. Their operations have become extremely difficult due to logistical problems, blocked markets, and real threats of environmental disasters at livestock farms.

P. Bórawski *et al.* (2020) consider the biggest problems of modern agriculture to be the volatility of agricultural prices, population growth and climate change, which causes uncertainty among both farmers and consumers. The war in Ukraine has increased the challenges and uncertainty for all food market actors, making it difficult to make many decisions, such as production, financial, marketing, etc. Furthermore, uncertainty stimulates speculative behaviour in the market, causing price fluctuations and increasing market volatility.

Economists predict that a prolonged war in Ukraine could not only undermine economic growth, but also further increase inflationary pressures (Siddiqui, 2022). At the same time, large-scale losses amid uncertainty and extreme instability are making agricultural production difficult and sometimes impossible. Without adequate government support and incentives for agricultural development, investment in agribusiness will continue to decline in the near term.

In the European Union, farm investments are supported by government programmes. One of the main goals of agricultural investment support programmes is to increase farm profits (Kirchweger *et al.*, 2015). A large share of the Common Agricultural Policy (CAP) budget takes

the form of subsidies to support and stabilise farmers' incomes (Bojnc & Fertő, 2019). In contrast to EU countries, in Ukraine, investment in agriculture is financed mainly by producers themselves. In the structure of sources of capital investment financing, agricultural enterprises' own funds account for about 90%. In times of war, this situation becomes particularly dangerous and can pose a threat to investment, economic, and food security.

T. Zinchuk *et al.* (2021) performed a theoretical and empirical analysis of incentives for agriculture and their role in achieving food security goals. They believe that the incentives for agricultural production are strong in developing countries where agriculture contributes a significant share of gross domestic product and economic development. This conclusion is quite reasonable and fair, however, in Ukraine, where agriculture is the leading export-oriented industry and the engine of the Ukrainian economy, there is little incentive for agricultural producers.

Apart from investment support, the economy needs to recover from the crisis by creating a business environment in which all business entities can not only recover but also operate effectively. At the same time, it is necessary not only to overcome new challenges, but also to take measures to prevent corruption, especially at the highest levels of the civil service and big business, and political corruption, which is part of grand corruption and involves manipulation of legislation and procedures, manipulation of elections, etc. Furthermore, reforms of the judicial and tax systems are a top priority. Another key issue for Ukraine's agricultural sector is the introduction of measures to prevent monopoly in the industry and to ensure state protection of competition in business.

In the current situation, it is not only relevant, but also vital for Ukraine's agricultural sector to receive investment support to restore and adapt to the new challenging conditions of operation and further development. Investment support for farms is a key instrument of European agricultural policy. Each year, it is provided to a considerable number of farms across Europe to stimulate technological advance on farms, increase productivity, and help farms adapt to changing market conditions (Nilsson & Wixe, 2022).

Before the war, the amount of state support for agriculture was scarce, and most of it went to agricultural holdings and large agricultural companies. O. Borodina (2022) addresses the fact that agricultural holdings, despite their high profitability, systematically lobby for their interests, monopolising state support for the entire agricultural sector. Before the full-scale war, 5-10% of the largest agricultural enterprises accumulated 70-80% of the funds allocated by the state to support agriculture. At the same time, large agricultural enterprises received significant funds from the World Bank, the International Monetary Fund, and the European Bank for Reconstruction and Development.

Material losses and reduced incomes of agricultural producers due to the war with Russia make it difficult and sometimes impossible to operate without additional funding. Programmes to support the agricultural sector should become part of the state's anti-crisis measures. Investment support for agribusinesses should be a key element of programmes to support agriculture during the

war and post-war recovery. However, in general, the funds allocated by the state budget are very limited and disproportionate to the damage caused by the war and its consequences. Still, Ukraine receives considerable amounts of international financial aid. Therefore, the criteria for selecting business entities to support and areas of investment are important.

The structure of Ukrainian agriculture is currently somewhat deformed. On the one hand, there is the individual sector, whose activities are aimed at producing conventional goods for the domestic market, and on the other hand, the corporate sector, which includes agricultural holdings and large agricultural enterprises with a significant share of foreign capital, focused on the constant expansion of mono-commodity production and exports (Borodina, 2022). Therefore, given the current situation, it is advisable to support small and medium-sized agricultural producers. This approach is based on the vital role of these forms of business in the development of rural areas. Small and medium-sized agricultural enterprises form the budget of rural communities. Furthermore, agricultural holdings are taxed under the simplified taxation system, which means they are virtually exempt from corporate income tax. Large companies often do not have the same place of registration and place of business. Often, agricultural holdings are registered abroad, specifically in offshore zones, which has a negative impact not only on local budgets but also on the budget of Ukraine.

New challenges and threats caused by the war have intensified the destructive processes in the agricultural sector of Ukraine's economy. Specialisation in the production of raw agricultural products for further export does not contribute to the efficiency and competitiveness of the agricultural economy and the sustainable development of rural areas. A. Razumova *et al.* (2022) emphasise that the main areas of investment activity are the production of simple goods and the processing of raw materials. They consider this result to be negative. Therefore, the priority area of investment support should be the development of agricultural processing. V. Rusan (2022) believes that the priority areas of investment in the agricultural sector of Ukraine's economy should be aimed at meeting the needs of the domestic market with vital social food products, developing livestock and advanced processing, and reorienting the structure of exports to highly profitable and less tonnage raw materials and processed products with a higher added value.

At the same time, in the context of global climate change, which is intensifying and accelerating due to the war with Russia, it is crucial to ensure sustainable agricultural development. S. Berezyuk *et al.* (2023) believe that the general direction of agricultural production development should be directed towards the introduction of technology-friendly technologies. The Law of Ukraine No. 2710-IX "On the State Budget of Ukraine for 2023" (2022), with financial aid from the World Bank, provides UAH 1.56 billion for agricultural sector development programmes. Specifically, UAH 1 billion is allocated for grants for the development of gardens and greenhouses, UAH 360 million is allocated to strengthen the Partial Loan Guarantee Fund (PLGF), and UAH 201 million is allocated to support water user organisations (WUOs).

The low-interest loan programme for the sowing and harvesting season-2023, jointly with the World Bank, provides for USD 432 million (Support for agriculture..., 2023). Part of the funds from the World Bank (USD 202 million) will be used to pay interest rate compensation for loans to small and medium-sized agricultural producers and food producers under the "5-7-9%" programme. Under the government's "5-7-9%" programme, short-term working capital loans for agricultural enterprises are provided by banks under the government's guarantee at a reduced interest rate. USD 80 million will be allocated for one-time payments to agricultural producers who cultivate 1 to 120 hectares and for one-time subsidies to owners of 3-100 cattle. USD 50 million has been earmarked to support energy supply to elevators and granaries, and USD 100 million to purchase and supply wheat and corn to Africa and Asia. In 2023, Ukraine's agricultural producers also have access to a program for preferential financing, which is financed by the International Finance Corporation (IFC) (50%) and other donors (50%) to the extent of 1 million USD (Support for agriculture..., 2023).

Investment support for agribusinesses through concessional lending programmes is crucial for agricultural producers. Restoration of economic activity and functioning in a war environment, and hence increased risks and dangers, requires considerable investments. First and foremost, this concerns small and medium-sized agricultural enterprises as more financially vulnerable economic entities. L. Vdovenko (2022) addresses the low activity of attracting credit resources by agricultural enterprises and emphasises the need for financial support for small-scale producers, which, unlike large-scale enterprises, have demonstrated flexibility and capability of meeting the food needs of consumers in the domestic market under martial law.

Financial aid to Ukraine's agri-food sector will help restore production facilities and infrastructure, thereby increasing the resilience of agricultural enterprises. Furthermore, international financial aid is aimed at mitigating the impact of military challenges on world food markets and global food security. Strengthening international cooperation and investment cooperation in agriculture will facilitate the exchange of resources, knowledge, and best practices, while also supporting the sustainability of global agricultural markets and the security of the global food system.

### ► Conclusions

The full-scale war with the Russian Federation has resulted in significant losses in Ukraine's agriculture. New challenges are emerging, risks are increasing, and threats are appearing that pose problems for the agricultural sector and adversely affect the investment activities of agricultural enterprises. The threat to Ukraine's national security due to the military actions and occupation has had an adverse impact on the country's investment climate and the operating conditions of agricultural enterprises.

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Problems with product sales due to export blockades and disruption of logistics, a shrinking domestic market, and a decline in the purchasing power of the population increased economic risks. The war against the Russian Federation has caused considerable losses and damage to agricultural enterprises, as well as a reduction in production and income of agricultural producers.

Agricultural production in 2022 decreased by 25% compared to the previous year. A significant decline in agricultural output occurred in all regions of Ukraine, except for Lviv and Zakarpattia oblasts. Among the regions most affected by the war with the Russian Federation are Kherson, Zaporizhzhia, Donetsk, Luhansk, Kharkiv, Mykolaiv, and Odesa oblasts. In these regions, the decline in agricultural production has reached critical levels, ranging from 32% in Odesa Oblast to 95% in Kherson Oblast.

The consequences of the full-scale war led to a significant decline in investment activity in Ukrainian agriculture. In 2022, the volume of capital investments in the agricultural sector of Ukraine's economy was about 60% of the pre-war 2021 figure. This was the largest investment decline in Ukrainian agriculture in 2010-2022. The volume of investments in the agricultural sector reached the level of 2014, when Russia's aggression in Ukraine began. The war with Russia has caused serious environmental problems for Ukrainian agriculture. Environmental pollution and the consequences of the Kakhovka HPP explosion will have a long-term impact on the development of agriculture and rural areas. Restoring the environment and overcoming other adverse consequences of the war will require considerable effort and funding.

Ukraine's full-scale war with Russia has exacerbated the impact of destructive processes in the development of the agricultural economy. The raw material export-oriented model of development of the agricultural sector of Ukraine, in which the key players are large agricultural companies and agricultural holdings, has proved to be insufficiently sustainable and socially oriented and needs to be transformed. Restoring and developing Ukraine's agriculture will require significant amounts of public funding. At the same time, current challenges can open new opportunities for agribusiness development. Specifically, the recovery of the agrarian economy should be directed towards supporting small-scale, small and medium-sized agribusinesses and promoting the development of agricultural processing. Given the duration of the war and possible changes in the situation in Ukraine's agricultural sector, it is promising to repeat the survey to assess the impact of the war on investment activity more accurately.

### ► Acknowledgements

None.

### ► Conflict of Interest

The author of this study declares no conflict of interest.

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## Інвестиційна діяльність у сільському господарстві України під час війни: нові виклики та загрози

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► **Анотація.** Інвестиційна діяльність є важливою умовою ефективного функціонування та розвитку аграрної економіки. Інвестиції дають змогу підприємцям досягти бажаних результатів діяльності та реалізувати стратегічні цілі підприємств. З початком вторгнення росії в Україну перед сільськогосподарськими виробниками постали нові виклики і загрози, у зв'язку з чим виникла потреба адаптуватися до нових умов. Метою статті було дослідити вплив війни на сільське господарство України та виявити нові ризики та небезпеки для інвестиційної діяльності в сільському господарстві під час війни. У процесі дослідження використано діалектичний метод наукового пізнання, аналізу й синтезу, системного узагальнення, порівняльного аналізу, а також об'єктивно-історичний, індуктивний, дедуктивний методи, евристичний метод генерації варіантів рішень та метод цільового обґрунтування. У статті розглядаються тенденції розвитку інвестиційної діяльності в аграрному секторі економіки України в довоєнний період та під час війни. Встановлено виклики та загрози для сільського господарства, спричинені агресією росії. Виявлено основні проблеми інвестиційної діяльності сільськогосподарських виробників в умовах повномасштабного вторгнення російської федерації, запропоновано шляхи подолання цих проблем та напрями підтримки сільського господарства під час війни та у післявоєнний період відновлення країни. Розглянуто деструктивні процеси в системі функціонування аграрної економіки України у довоєнний період та обґрунтовано заходи щодо їх подолання. Встановлено пріоритетні напрями інвестиційної підтримки для забезпечення сталого розвитку аграрної економіки та сільських територій. Обґрунтовано ключові орієнтири розвитку аграрного сектору економіки України. Висновки, пропозиції та практичні рекомендації можуть бути використані при розробці відповідних програм та заходів, спрямованих на підтримку сільськогосподарських виробників під час війни та у післявоєнний період відновлення національної економіки

► **Ключові слова:** продовольча безпека; ризик; небезпека; фінансова допомога