

The activities and development prospects analysis of the agricultural sector of Ukraine

Olha Pavelko^{1*}, *Inna Lazaryshyna*², *Zoriana Los*¹, *Valentyna Vasylieva*³, and *Liubov Kvasnii*⁴

¹ National University of Water and Environmental Engineering, 11 Soborna Str., Rivne, 33028, Ukraine

² National University of Life and Environmental Sciences of Ukraine, Heroiv Oborony Str.15, Kyiv, 03041, Ukraine

³ University of Customs and Finance, Volodymyr Vernadsky Str. 2/4, Dnipro, 49000, Ukraine

⁴ Drohobych Ivan Franko State Pedagogical University, Ivana Franka Str. 24, Drohobych, Lviv region, 82100, Ukraine

Abstract. The losses of the agrarian sector of Ukraine's economy during the war are characterized. The dynamics of net profit, the volume of sold products and the number of enterprises involved in managing Ukraine's agriculture, hunting and the provision of related services for 2012-2022 are analyzed. Such risks for agricultural sector functioning due to the martial law in Ukraine as loss of production and resource potential of the agricultural sector, deterioration of the technical support of agricultural enterprises, loss of part of the infrastructure for storage and primary processing of agricultural products, complication of sales on foreign markets are identified and substantiated. An analysis of capital investments by sources of financing in agriculture, hunting and the provision of related services is carried out. A linear regression model that describes the relationship between the National Bank of Ukraine discount rate and the amount of bank investment in agriculture, hunting and the provision of related services is built. A sample regression equation is formed. It is proposed that the constructed model be used to forecast the dynamics of bank lending to agriculture. The estimated 2024 recovery and reconstruction priorities of Ukraine's agriculture are presented. Critical tasks which urgently need solutions due to the situation in Ukraine, caused by the state of war and active hostilities, are defined.

1 Introduction

The Ukraine's agrarian sector is an integral complex closely linked to natural conditions, resources, technical capabilities and qualified specialists. It is not only the engine of Ukraine's economy that generates foreign exchange earnings from exports of agricultural products, which, due to the significant debt burden on the national economy, is a source of covering current liabilities, but also provides the population of Ukraine with high-quality products of its own production.

* Corresponding author: o.v.pavelko@nuwm.edu.ua

The most important achievements of the agricultural sector development are the agrobioclimatic potential of increasing the production of agricultural products, its high quality and safety, confirmed by international recognition; farmers' investments in seeds, fertilizers, plant protection products and implementation of IT technologies; application of innovative developments of well-known breeding companies; the use of the latest modern technology, which makes it possible to treat the soil qualitatively. At the same time, the main disadvantages of the development of agricultural production in Ukraine are a sharp drop in soil fertility due to a significant decrease in the application of organic fertilizers and meliorants; the growth of areas inhabited by dangerous pests, diseases, viruses and bacteria; lack of agrochemical soil surveys at the state level in different regions of the country; the low level of funding of scientific institutions related to the agricultural sector, which led to the loss of personnel.

According to calculations provided by the Center for Food and Land Use Research (KSE), based on World Bank data, the value of assets destroyed during the war in Ukraine is \$10.3 billion. The largest category of losses among assets is damaged and destroyed agricultural machinery (\$5.8 billion). This accounts for 56.7 % of the total losses from the war, theft of production resources – 18%, damage to warehouses – 18%. According to experts' estimates, about 181,000 units of agricultural equipment were damaged as a result of the war. Losses from the destruction of manufactured products amount to 1.97 billion dollars, losses suffered by granaries - 1.8 billion dollars.

Losses to perennial plantations are estimated at \$398 million, livestock at \$254 million, and aquaculture and fishing at \$35 million. In addition, Ukraine's agricultural sector lost another \$69.8 billion from reduced harvests. The total losses due to the decline in crop production amounted to \$35.1 billion, and additional losses due to the decline in livestock production amounted to \$5.6 billion. Losses caused by lower domestic prices are estimated at \$24.1 billion, and losses due to higher production costs at \$4.4 billion [1].

Given that agricultural producers in Ukraine have suffered large losses and damages, fully restoring the potential of the agricultural sector requires a large-scale investment of significant resources. There is a need to replace damaged assets, which are striking in their size. The agricultural sector's problems related to improving environmental friendliness, increasing lending to agricultural entities, and supporting them also remain unresolved. Further development of agriculture necessarily involves attracting loans from banks. The availability of sufficient financial support, implementation of a sound economic policy and effective regulation of land relations are important factors that influence the growth of agricultural production.

2 Related works

The problems and prospects of the agricultural sector of Ukraine have been the subject of research by many Ukrainian's scholars. Thus, in the work of Y. Khoroshun the priorities for the development of the agricultural sector in the system of ensuring the economic security of Ukraine are analyzed in the context of global trends, based on the data of the World Bank [2]. Yu. Yarmolenko used the data of the State Statistics Service of Ukraine and the State Agency of Land Resources of Ukraine when conducting such an analysis, which are also objective [3]. The dynamics of investing in agrarian business is covered in the works of A. Babenko [4], I. Kyrylenko and V. Ivchenko [5], Y. Kernasiuk [6]. Trends in the development of agricultural enterprises in rural areas are considered in the study of L. Moldavan [7], T. Pilyavoz [8]. Their taxation system is studied in the publication of P. Nesenenko [9].

Strategic alternatives for the development of the agricultural sector are outlined in the publication [10].

The Center for Food and Land Use Research of the Kyiv School of Economics (KSE Agrocenter) has presented a report on the Damages, losses and needs of agriculture due to full-scale invasion as of the beginning of 2024 [1].

Foreign scientists are also widely researching issues related to the functioning of the agricultural sector. A study of the relationship between expectations, risk appetite and investment in agricultural technology, using data collected from cocoa farmers, is presented by Alexis H. Villacis, Jeffrey R. Bloem, Ashok K. Mishra [11]. An integrated and systematic model for analysing the existing dynamics of sustainable development of the agricultural sector was formed in publication by M. Bastan , R. Ramazani Khorshid-Doust, S. Delshad Sisi and A. Ahmadvand [12]. A study of the level of e-commerce solutions use by agricultural enterprises is presented in investigation of J. Žukovskis, A. Raupelienė, P. Pypłacz [13] as well as it considered by Y. Zeng, F. Jia, L. Wan, H. Guo etc. [14-17]. The EU policy on various reforms that will reduce the imbalance between supply and demand in the agricultural market is highlighted in article published by R. Kotulič, M. Dubravská [18]. The problem of gender in agriculture is emphasized by scientists in their publications [19-24].

I. Bashynska et al. [25-26], reflects a pivotal aspect in understanding the smart agro-clustering initiatives, which are crucial for sustainable development within the agricultural sector. This aligns with the sustainable development of agriculture based on smart specialization [27], and the environmental and economic regulation necessary for sustainable spatial agroforestry [28]. These efforts emphasize the importance of peculiarities in natural resource economic estimation under transformational conditions [29].

Furthermore, the research of logical contradictions in cluster management, illustrated by V. Hrosul [30], underscores the impact of tax policy on business development and economic dynamics, as explored by I. Sopronenkov et al. [31].

Agriculture is supposed to be the most important sector of economy. Also agricultural insurance sector is important in current policy initiatives. In order to improve the insurance program and fulfill the goals of sustainable agriculture, governments should be more actively involved in cooperation with commercial reinsurers, technology providers and financial institutions. These aspects are emphasized in the publication [32]. The study of the experience of financial support of the agricultural insurance system of Ukraine, as well as the features of innovative financial criteria for evaluating the methodical support of the process and technologies of agricultural insurance, the content and principles of agricultural insurance are presented in the publication [33]. The authors of the publication developed approaches to determining target indicators for evaluating the development of the agricultural insurance system, described the advantages and disadvantages of the existing range of insurance products. Attention was also drawn to internal and external factors affecting agricultural insurance. Farmers' losses are often caused by specific climatic conditions, sudden floods, hail, and rising temperatures. This hinders the development of agriculture. This is the focus of the publication by P.K. Sharma, S. Sharma, L. Choudhary, M. Nepal, A. Mushtaq, T.A. Parray [34]. Using the example of apple producers, scientists are investigating their willingness to take out insurance against extreme climatic events.

The dependence of the efficiency of the agricultural sector on weather conditions and the state's participation in agricultural insurance are covered in publication by A. Lorant, M. Farkas [35] and M. Bielza, C. Conte, C. Dittmann, J. Gallego, J. Stroblmair [36].

The study: [37] says about the need to invest farmers and agricultural micro, small and medium enterprises in order to increase their productivity while reducing the impact on the environment and taking into account climate risks.

The importance of meeting the goals of sustainable development during all types of economic activity is emphasized in the studies [38, 39]. The expediency of introducing modern membrane technologies for the processing of milk whey is indicated in [40]. This will make it possible to improve the profitability of the agricultural sector and increase the quality of dairy products. The dairy industry of Ukraine is one of the most important in its turn because its products have stable demand [41].

3 Method

Ukrainian agriculture has a number of features that distinguish it from other types of economic activity, namely: agricultural enterprises operate under conditions of risk and uncertainty, because in agriculture the economic process of reproduction is closely intertwined with biological processes; agricultural production is carried out in different soil and climatic conditions (good, medium, bad), which directly affects the results of economic activity of enterprises; unlike industry, agricultural production involves not three but four resources, such as fixed and current assets, labor and land, with land being the main means of production in agriculture; agricultural production is characterized by seasonality of production, which is manifested in uneven use of labor and means of production, as well as in uneven receipt of products and income throughout the year; agriculture is a credit-intensive industry that cannot develop normally without additional financial resources; agriculture is a less attractive investment sector compared to a number of other sectors of the national economy due to the long period of agricultural production; in agriculture, compared to other industries, the process of production management is significantly more complicated [42].

This sector has traditionally played a significant role in the country's economy. It accounted for about 10% of GDP (7.76% in 2012, 10.18% in 2017, 10.63% in 2021). The sector accounted for about 40% of the country's total exports [43]. In 2022, Ukraine exported agricultural food worth 23.6 billion dollars. USA, which is 15% less than in 2021. The decisive factor in maintaining the volume of foreign supplies of agricultural products in the conditions of the full-scale invasion of the Russian Federation on the territory of Ukraine was the increase in the volume of supplies to the European Union, which last year reached its greatest value during the period of independence of our state. At the same time, the cost of deliveries to three other regions – Asia, Africa and the CIS – decreased simultaneously.

Therefore, in 2022, the volume of deliveries of agricultural products of Ukrainian production to the EU member states increased by 66% compared to the indicator of 2021. At the same time, the share of the EU in the domestic export of agricultural products for the first time exceeded half of all Ukrainian agricultural exports and amounted to 55.5%. The key products of domestic agricultural exports have traditionally been grain and oil crops, various oils, residues of the food and processing industry, as well as meat and by-products, which account for 88% of its value volumes. In order to further increase the scale of exports, the competitiveness of products should be increased, sales markets should be diversified, and existing markets should be supported and developed.

According to the Classification of types of economic activity-2010 in Ukraine, section A - Agriculture, forestry and fishing is provided. It includes three subsections: Agriculture, hunting and provision of related services; Forestry and logging; Fish farming. In this study, the analysis of indicators will take into account the data related to the sub-section "Agriculture, hunting and the provision of related services".

An important indicator of the performance of Ukraine's agricultural sector is the volume of agricultural sales and profitability of the industry (Fig. 1).

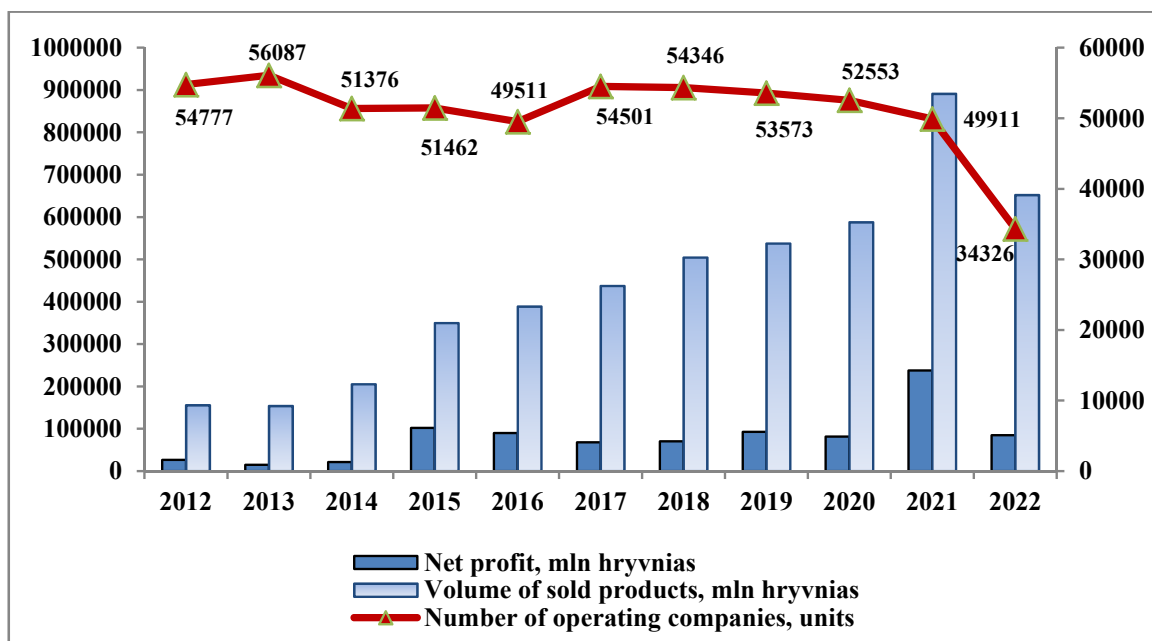


Fig. 1. Dynamics of net profit, the volume of sold products and the number of enterprises involved in the management of agriculture of Ukraine, hunting and the provision of related services (code 01 of section "A" according to Classifier of types of economic activity-2010) for 2012-2022 [44].

Thus, from 2015 to 2021, agricultural enterprises of Ukraine increased sales volumes. Starting from February 2022, when the war began in Ukraine, the activity of the agricultural sector underwent significant changes.

The amount of agricultural products sold decreased from UAH 891,089 million to UAH 651,989 million, and the amount of profit decreased from UAH 237,606 million to UAH 84,822 million.

At the same time, the number of operating enterprises also decreased (from 49,911 units to 34,326 units), which is caused by a number of factors. Major barriers to investment in agriculture today include unstable, unpredictable and opaque government policies; insufficient financing of agriculture; lack of effective and accessible infrastructure of agricultural markets and marketing system; inefficient government policy to support exporters; the vulnerability of the current business model of large agricultural holdings: dependence on changes in the external environment, the need to service debts (external borrowings) and the lack of land ownership [45].

Risks for the functioning of the agricultural sector due to the presence of military status in Ukraine are presented in Fig. 2.

But the war, which began just before the start of the 2022 spring planting campaign, had a very significant impact on the agricultural sector. The total area under crops in 2022 was reduced by 20 percent compared to 2021, and 15 percent of agricultural capital was damaged already within the first three months of the war.

Production of grain and oil crops production of grain and oil crops in 2022 fell to 73 million tons, which is 30 percent less than the previous year. An essential basis for supporting the development of processes in the agrarian sector is investment resources in economic activity of the relevant subjects.

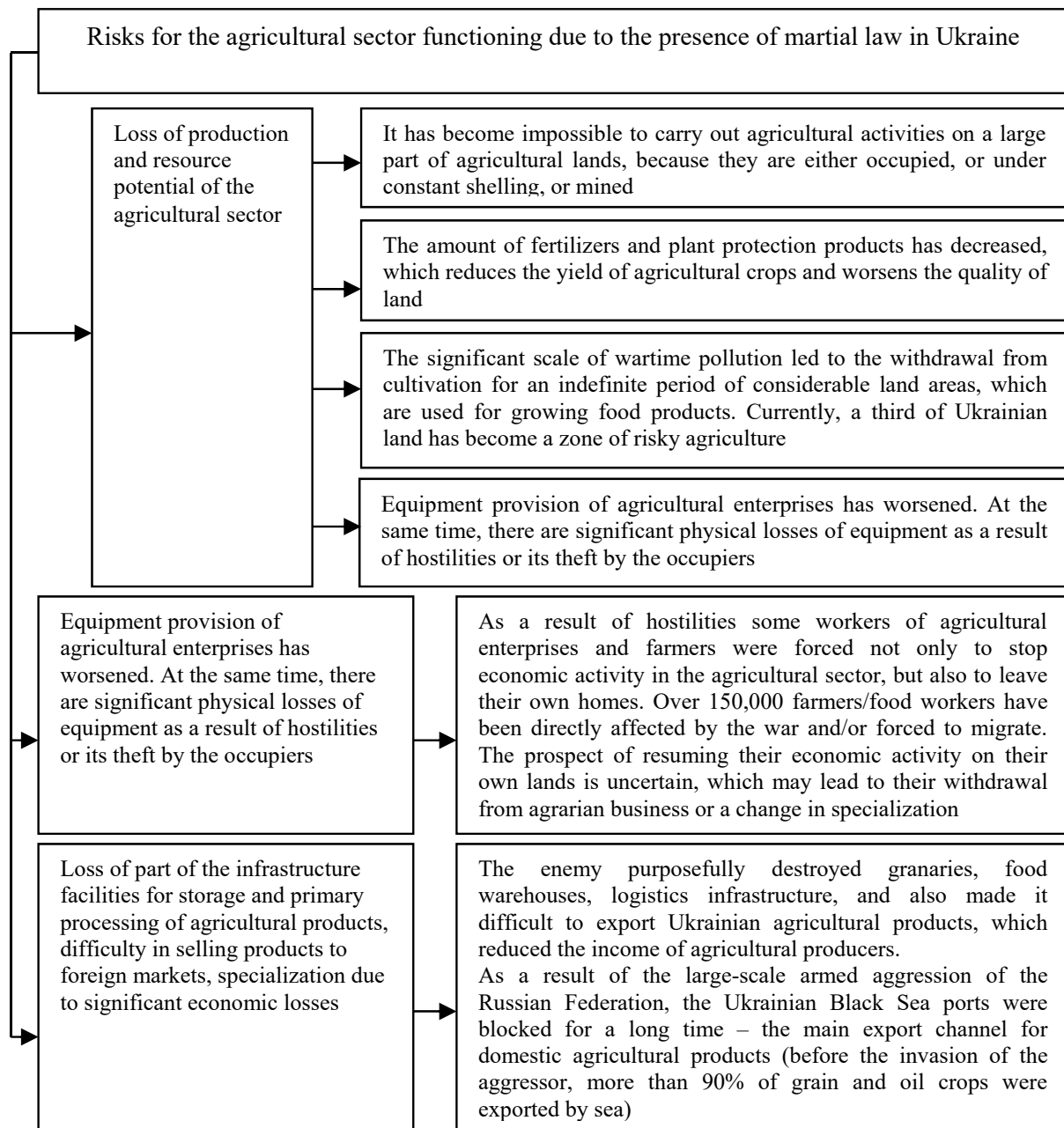


Fig. 2. Risks under which agricultural sector entities operate [42].

The analysis of the capital investments in agriculture of Ukraine, hunting and the provision of related services (code 01 of section "A" according to Classifier of types of economic activity-2010) is presented in Fig. 3.

The data of Fig. 3 indicate that in the period from 2012 to 2018, there was an increase in the volume of capital investments in the agriculture of Ukraine, hunting and the provision of related services. The above shows that the agricultural sector has been rather attractive for investments. It is also a priority, as a lot of money has been invested in its development over the years. It is noteworthy that in 2019-2020, the volume of investments decreased slightly, which resulted in a reduction of agricultural production. This was caused by the Covid-19 pandemic, unfavorable climatic conditions, changes in the political arena, etc.

Then in 2021, there was an increase in the volume of capital investments, which was suspended in view of the martial law in the country.

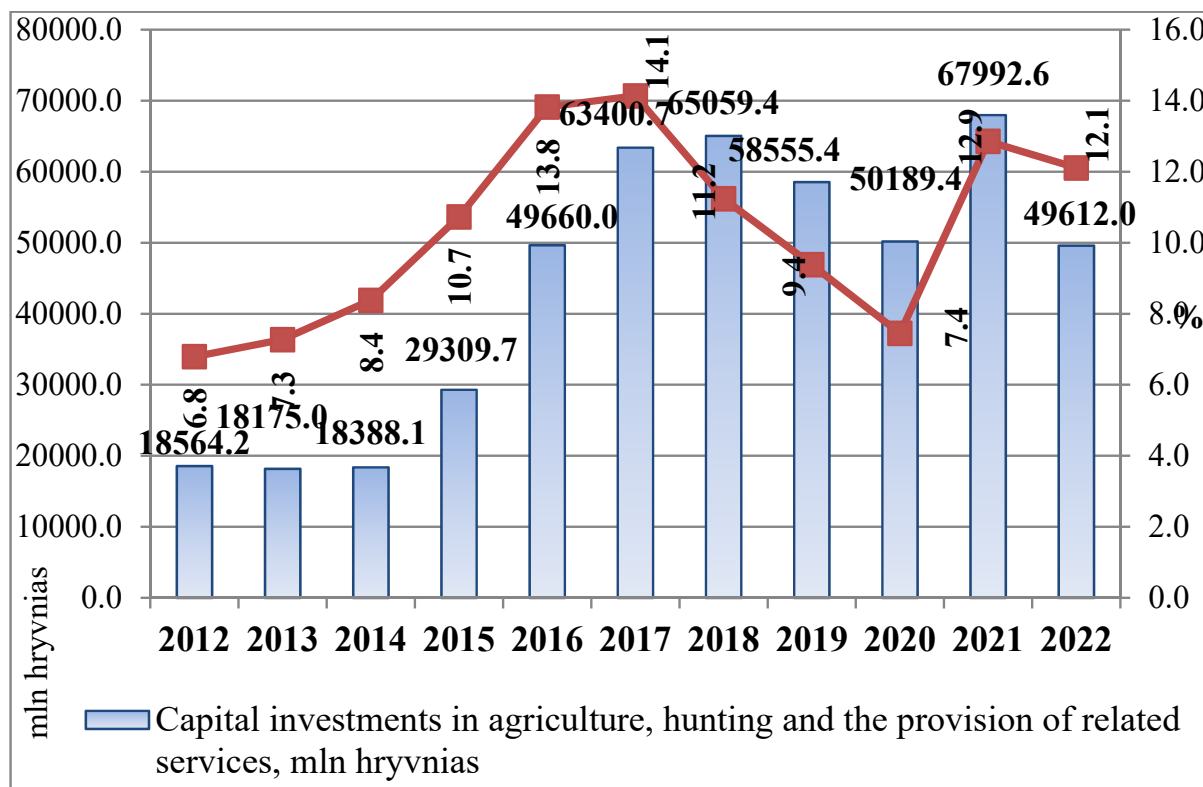


Fig. 3. Dynamics of capital investments in agriculture of Ukraine, hunting and the provision of related services (code 01 of section "A" according to Classifier of types of economic activity-2010) and their share in the overall structure of capital investments for 2012-2022 [44].

According to the assessment of the Ministry of Agrarian Policy of Ukraine and the Kyiv School of Economics, the total amount of losses caused to the agricultural industry as a result of the large-scale Russian invasion of Ukraine, as of On September 15, 2022, it reached 6.6 billion dollars. USA [42]. According to the World Bank, as of the end of 2023, damages and losses suffered by Ukrainian agriculture are estimated at 80.1 billion US dollars, with losses accounting for 87% of the total. The total amount of losses in agriculture is 10.3 billion US dollars, and losses – 69.8 billion US dollars; these figures include losses related to the destruction of the Kakhovka hydroelectric power station.

The total number of economic entities of the agro-industrial complex that suffered losses as a result of the armed aggression of the Russian Federation is 2,653 units (arable land decreased by 1.9 million hectares, perennial plantations decreased by 9 thousand hectares). In addition, the territory of about 1 million hectares needs to be examined for the presence of explosive objects.

Crop production suffered significant losses, in particular, the loss of plant production in natural quantities in 2022, compared to the previous year, amounts to 35–40%, which is due to the reduction of sown areas (due to the temporary occupation of the territories of Ukraine) and lower crop yields compared to the previous year. The livestock sector was significantly affected. According to the Ministry of Agrarian Policy of Ukraine, 15-20% of cattle, pigs and poultry were lost due to military actions. The farms of Chernihiv, Kharkiv, Sumy, Kyiv, Donetsk, Luhansk, Mykolaiv, Kherson and Zaporizhia regions were the most affected. In the structure of capital investments by sources of financing the largest specific weight is occupied by own funds of enterprises (90.92% in 2021), bank loans (8.95% in 2021) (Table 1).

Table 1. Capital investments by sources of financing in agriculture, hunting and the provision of related services for 2018-2021, thousand hryvnias.

Indicators	2018	2019	2020	2021	Growth rate, 19/18, %	Growth rate, 20/19, %	Growth rate, 21/20, %
1. Total, incl. due to:	65059382	58555401	35998240	48079987	90,00	61,48	133,56
1.1. funds from the state and local budgets	116497	264315	2193	11528	226,89	0,83	525,67
- as a % of the total volume of capital investments	0,18	0,45	0,01	0,02	-	-	-
1.2. own funds of enterprises and organizations	56438319	53233113	32694787	43715765	252,09	1,35	393,58
- as a percentage of the total volume of capital investments	86,75	90,91	90,82	90,92	-	-	-
1.3. bank loans and other loans	8377427	5022048	3138918	4302362	59,95	62,50	137,07
- as a percentage of the total volume of capital investments	12,88	8,58	8,72	8,95	-	-	-
1.4. other sources of funding	127139	35925	162342	50332	66,61	101,67	102,62
- as a percentage of the total volume of capital investments	0,20	0,06	0,45	0,10	-	-	-
2. The accounting rate of the NBU, %	17,25	16,69	7,38	7,69	31,40	735,05	23,21

Source: calculated by the authors based on the data of the State Statistics Service of Ukraine [44].

Therefore, capital investments in agriculture, hunting and the provision of related services are mainly made from the funds of enterprises. The second largest source of financing in 2018-2021 is bank loans, which is explained by the decrease in interest rates on loans and the facilitation of the process of lending to legal entities. The volume of bank lending is related to the volume of budget lending. However, the discount rate of the National Bank of Ukraine has a decisive influence on bank lending for construction, the reduction of which significantly contributes to the expansion of lending.

Using the data of table it is worth building a linear regression model that will describe the relationship between the NBU discount rate and the amount of bank investment in agriculture, hunting and the provision of related services. A simple linear regression model is a mathematical equation that predicts the response to a given predictor value. The selective regression equation also takes into account funding from the budget and has the following form:

$$I = 6112234.291 - 607.126 \times S + 0.5487 \times B \quad (1)$$

where I – bank investments (thousand UAH),
 S – NBU discount rate (%),
 B – budget investments (million UAH).

The coefficient of determination of the model is $R^2 = 0.842$.

Thus, the model explains 84.2% of the variation of the dependent variable.

This model is adequate according to Fisher's test: $F = 10.28$; $F_{kp} = 6.99$; $F > F_{kp}$.

The Student's t-test was used to determine the level of significance of the model parameters: 98.4%, 95.3% and 93.2%. Next, it is advisable to conduct an economic and mathematical analysis of the obtained dependence. To do this, calculate the average elasticity coefficients of the factors by the following relations (2,3):

$$E_S = -607.126 \times \frac{\bar{S}}{\bar{I}} \quad (2)$$

$$E_B = 0.5487 \times \frac{\bar{B}}{\bar{I}} \quad (3)$$

As a result, the following values were obtained. This means that with an increase in budget financing by 1%, the corresponding bank credit investments increase by 0.25%; with a decrease in the discount rate by 1%, the corresponding bank investments increase by 0.31%. A 1% decrease in the key policy rate indicates a relative decline compared to the average (12.25%). At the same time, in absolute terms, this change will be 0.1225%. It follows that when the National Bank reduces the discount rate by 1%, the increase in bank credit investments will be $0.31/0.1225 = 2.53\%$.

Financial indicators most often have exponential trends. This is due to the fact that the money supply grows according to the exponential law. Hence the fact that prologarithmic values of financial indicators will have a linear trend and will be more convenient for forecasting. Let's rebuild the bank investment model described above, using the prologarithmic values of budget financing and bank loans. The sample regression equation has the following form (4):

$$\ln I = 8.476 - 0.026 \times S + 0.221 \times \ln B \quad (4)$$

where I – bank investments (thousand UAH),

S – NBU discount rate (%),

B – budget investments (million UAH).

The coefficient of determination of the model is $R^2 = 0.907$.

As follows, the model explains 90.7% of the variation in the dependent variable. The model is adequate according to Fisher's test: $F = 20.64$; $F_{kp} = 6.93$; $F > F_{kp}$.

The Student's t-test was used to determine the level of significance of the model parameters: 98.3%, 98.9%, and 98.7%.

Thus, model (4) is better than model (1) in all respects. The constructed model (4) can be used for medium-term forecasting of the dynamics of bank lending to agriculture, hunting and related services.

Among the main factors of insufficient amounts of bank lending to the agricultural sector in today's conditions, the following can be singled out. There is an insufficiently effective system of protection of the rights of creditors and investors, which causes a high basic level of risk during lending. In Ukraine, there is a lack of liquid "solid" collateral – land, as before, cannot be used as collateral for a loan, and small farms simply do not have any other "excess" property. According to the current regulation on credit risk assessment, the collateral for the future harvest will no longer be taken into account when determining the amount of credit risk. That is, a loan secured by the future harvest is equal to an unsecured loan in terms of the impact on the bank's capital. This further narrows the possibilities of banks when lending to farmers). Banks offer inflated lending interest rates.

At the same time, the profitability of agriculture allows farmers to withstand them during "reverse" lending. Mostly, it is an obstacle to financing investments that require several years of payback. In the cost of loans, banks include the cost of resources and the basic level of risk. Deposit rates in Ukraine are among the highest in Europe, so it is a rather expensive resource for banks. The imperfection of the legislation regarding the protection of creditors' rights, unfortunately, leads to a high credit risk, which also negatively affects the amount of the loan interest rate.

The NBU discount rate is quite high in the country, which determines the profitability of liquidity management instruments, such as NBU certificates of deposit. At a high discount rate, banks are more inclined to invest free money in risk-free NBU certificates than in high-risk loans. Therefore, its gradual decrease stimulates banks to return to the active recovery of lending to the real sector. Low quality of financial planning, accounting and reporting is observed. Previously, this was an obstacle for most banks when evaluating borrowers (representatives of small and medium-sized agrarian businesses). Today, when assessing credit risk in the agricultural sector, banks pay more attention to production and natural indicators than to official financial statements. However, insufficient financial planning prevents farmers from making informed decisions about the advisability of obtaining a bank loan. Financial reporting directly affects the formal assessment of credit risk. Imperfect reporting by the borrower leads to an overestimation of risk and a decrease in the bank's capital.

There are no reliable land use statistics in Ukraine. It is about the lack of reliable data. This significantly complicates the process of evaluating a potential borrower, which leads to an increase in the cost of this process. When lending to large enterprises, the costs of a full-fledged agrarian audit are easily covered by the standard interest on the loan. For small farms, such costs are economically impractical. Imperfect legal framework for lending to the agricultural sector is in Ukraine. Therefore, the current regulatory documents need significant updating. Bank loans are unable to fully meet the needs of agricultural enterprises in terms of credit resources. Mainly, bank loans are issued for short- and medium-term periods. Regulation of credit provision of agricultural enterprises is ineffective, and state support is insufficient. In view of this, unsatisfactory volumes of credit resources inflow into the agrarian sphere are caused.

If we monitor the dynamics of lending to agricultural sector entities, it should be noted that in 2022 it was low. However, already at the end of March 2023, activity among farmers in the direction of taking loans has increased significantly. Certain regularities began to be observed, which became the main trends of the current year. Firstly, in the conditions of a difficult logistical situation, every farmer thought about purchasing his own transport for transporting the crop. That is why there were a lot of requests for financing tractors, trailers, semi-trailers, and in conditions of growing demand, customers are ready to buy not only new, but also used equipment. Secondly, due to the rising cost of new equipment, the demand for used agricultural equipment from Europe, in particular combines, has increased significantly. 90% of this demand in our country was formed by the agrarians of the Poltava, Kharkiv and Chernihiv regions. Thirdly, the number of projects in the field of animal husbandry, which now seems very attractive for investment, has increased. The occupation of the eastern and southern regions led to a decrease in domestic production, and low grain prices and an excess of supply over demand made it possible to reduce the cost of feeding animals and increase the attractiveness of the industry. Kirovohrad, Ternopil, and Khmelnytskyi regions are the most active regions with requests for financing the construction and reconstruction of animal husbandry facilities.

The key players in the agricultural sector are, of course, state banks. But private banks with Ukrainian capital also quickly adapted to market conditions, changed the risk-rules and requirements in their products and adjusted their own approaches to the new reality.

Banks with foreign capital, on the contrary, reduced the amount of lending to the agricultural sector. Further transformation of the lending segment is expected in 2024. In 2022, banks refinanced borrowers for one or two seasons to allow them to resume operations. One of the tasks of 2024 is the quality implementation of the second stage of restructuring. The second trend will be the further redistribution of the lending market for agricultural producers between state banks and private banks with Ukrainian capital. They will win back market share from banks with foreign capital, which in wartime will maintain a strategy of non-growth of the loan portfolio. The third trend will be a further increase in the debt load of agricultural producers and an increase in the share of bank financing in the structure of the seed budget. Investments in the processing of products of the agrarian sector will increase, in particular in livestock development projects, which, in conditions of low prices and logistical problems, make it possible to evenly distribute cash flows and provide synergy with crop production.

The following measures should be the focus of the authorities for recovery and reconstruction in 2024: providing direct support to farmers through state programs that have worked successfully in previous years to restart agricultural production. This support combines grants and means of production for small farms, compensation of interest rates on loans for the production of agricultural products, as well as investment grants for the development of horticulture. Attention must be paid to the demining of territories, as a significant part of them is mined. This does not allow the subjects of the agrarian market to properly conduct economic activity.

According to the forecasts of the World Bank, the approximate priorities for the restoration and reconstruction of agriculture in Ukraine for 2024 are as follows (Table 2).

Table 2. Estimated 2024 recovery and reconstruction priorities of Ukraine’s agriculture (US\$ million) [43].

<i>No.</i>	<i>Types of priority activities</i>	<i>Estimated cost</i>
1.	Support for immediate agriculture production recovery	402
1.1.	Interest rate compensation (portion of 5-7-9 program)	320
1.2.	Grants and inputs for agricultural production by small farms	71
1.3.	Partial credit guarantees for agriculture	11
2.	Support for longer-term recovery of the agriculture sector	13
2.1.	Investment grants for investing in horticulture	13
3.	Support for agricultural public institutions and programs, including for EU accession	20
4.	Total	435

The overall needs for reconstruction and rehabilitation are estimated at USD 56.1 billion, according to preliminary estimates by experts [1]. Given the situation in Ukraine, caused by martial law and active hostilities, the following tasks need to be solved urgently:

- provision of conditions for farmers to carry out all necessary complex of field work. EU support for Ukrainian farmers can have a significant impact on spring sowing. Farms must be supplied with seed and fertilizers in full;
- facilitating the restoration of animal populations and the reconstruction of livestock complexes. The Cabinet of Ministers of Ukraine needs to appeal to partner countries and international organizations so that they introduce specialized grant programs aimed at the purchase of young animals by domestic farmers, their vaccination, the construction of family-type livestock farms, and also provide funding for such programs;
- continuation of the grain initiative, extension of the deadline for its implementation until the termination of martial law. It is also important to expand the grain initiative to the Mykolaiv port hub, as well as to include in the agreement the possibility of importing mineral fertilizers to ports;

- adapting Ukraine's agrarian policy to the relevant provisions of the EU's Common Agrarian Policy, bringing domestic legislation in this area into compliance with the requirements related to Ukraine's accession to the EU. At the same time, legislative and regulatory acts, which will be difficult for farmers to implement in war conditions, should be adopted with a delayed implementation period - after the end of martial law.

Needs should be concentrated in the following areas:

- completion of reconstruction or replacement of war-damaged objects in compliance with the principle of "rebuilding better than it was";

- supporting the long-term recovery of the sector in order to increase its diversification and inclusiveness, climate resilience, food and energy integration, as well as environmental and social sustainability in accordance with the requirements of the European Green Deal;

- increasing investments in agrarian state institutions for the introduction of science-based agriculture and the formation of a policy for the development of rural areas, which includes agricultural services (sanitary and phytosanitary measures, food products, phytosanitary measures, food safety, land monitoring and registration, soil testing for accurate agricultural services (sanitary and phytosanitary measures, safety, soil monitoring and registration, soil testing, agricultural research and advisory services, training and retraining of workers in the agro-industrial complex), training and retraining of farmers [46].

Regardless of the circumstances agriculture must actively implement innovative technologies in order not to lose ground to foreign farmers. Accordingly, costs for innovation require permanent analysis. The authors emphasize this in the works: [47-50].

4 Conclusions

Consequently, the agriculture of Ukraine is rightly considered to be one of the most strategic and priority types of economic activity due to favorable climatic conditions and powerful agrarian potential. According to the results of military operations on the territory of Ukraine, as of the beginning of 2024, about 181,000 units of agricultural equipment were damaged. The amount of losses from the destruction of manufactured products is estimated at 1.97 billion dollars. At the same time, the amount of losses due to damage to granaries is 1.8 billion dollars. Considering the scale of damages and losses suffered by agricultural producers in Ukraine, the full restoration of the industry's potential requires significant resources.

The performed analysis of the dynamics of net profit, the volume of products sold, and the number of enterprises involved in the management of agriculture of Ukraine, hunting and the provision of related services gives reasons to state that starting from February 2022, the activity of the agricultural sector of Ukraine has undergone significant changes. The amount of agricultural products sold decreased, as did the net profit. At the same time, the number of operating enterprises also decreased (from 49,911 units to 34,326 units), which is caused by several factors. Among the main risks under which subjects of the agrarian sector operate, the following are distinguished: loss of production and resource potential of the agrarian sector; exit of individual agricultural producers from agrarian business or change of specialization due to significant economic losses; loss of a part of storage and primary processing infrastructure facilities agricultural products; difficulties in selling products to foreign markets; specialization due to significant economic losses.

The conducted analysis of capital investments shows that in the period from 2014 to 2018, there was an increase in the volume of capital investments in agriculture of Ukraine, hunting and the provision of related services. In 2021 there was an increase in volumes, which was suspended in view of the martial law in the country, which was introduced in 2022.

At the same time, the largest specific weight in the structure of capital investments by sources of financing is occupied by own funds of enterprises (90.92% in 2021), bank loans (8.95% in 2021). We have built a linear regression model that describes the relationship between the discount rate of National Bank of Ukraine and the amount of bank investment in agriculture, hunting and the provision of related services. A sample regression equation that takes into account financing from the budget was formed. It was determined that with an increase in budget financing by 1%, corresponding bank credit investments increase by 0.25%; with a decrease in the discount rate by 1%, the corresponding bank investments increase by 0.31%. This model can be used for medium-term forecasting of the dynamics of bank lending to agriculture, hunting and the provision of related services.

Among the main factors of insufficient amounts of bank lending to the agricultural sector in today's conditions, the following are singled out: an insufficiently effective system of protection of the rights of creditors and investors; inflated lending interest rates in the country; the accounting rate of the NBU is quite high; the quality of financial planning, accounting and reporting is low; there are no reliable land use statistics; imperfect legal framework for lending to the agricultural sector. Their elimination will contribute to a significant improvement of the situation in the agricultural sector.

The experience of foreign countries indicates that the state's food security largely depends on the state of the agricultural sector. The health of the nation, its labor and intellectual potential depend on the quantity and quality of food products. The primary task of every state is to ensure welfare of its people, which needs the transformation of the agricultural sector into a viable and prosperous branch of the economy, because food products are the first necessity of life. There is an excess of supply of agricultural products over demand abroad, which requires intervention the state in the process of pricing with the aim of ensuring more or less stable prices and a favorable regime trade.

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