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THE DETERMINANTS OF NEUTRALIZING THE INFLUENCE OF THE PRODUCTION RISKS OF AGRICULTURAL ENTERPRISES ON THE COMPETITIVENESS OF THE PROCESSING INDUSTRY

S t r e s z c z e n i e

Background. The article explores the impact of production risks in agricultural enterprises on the competitiveness of the processing industry, considering information asymmetry in an unpredictable environment. The paper identifies key production-stimulating elements crucial for the processing industry competitiveness using the theory of value. Economic ties between agricultural enterprises and processing industry subjects aim to integrate production and technological cycles for enhanced competitiveness. The article characterizes quasi-crisis pressures in the processing industry, providing indicators for economic relations between agricultural enterprises and processing industry subjects. The paper analyzes Ukraine's grain, oil and animal-origin raw material production for the processing industry and assesses the country's processing industry competitiveness crisis level. The financial processes of meat-processing agricultural holdings in Ukrainian regions, excluding occupied territories, were studied, considering private foreign investments in the pre-war and war period.

Results and conclusions. In summary, the methods employed in this research encompass a combination of an economic analysis, risk management techniques, a theoretical synthesis, diagnostic tools, a stakeholder analysis and a resource system analysis. These methods would be tailored to address the specific challenges faced by the agricultural and processing industry. Changes in the competitiveness crisis level of meat-processing agroholdings were calculated, taking into account the production and technological cycle. The article concludes with anti-crisis scenarios for cross-industry interaction to neutralize competitiveness crisis factors.

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Introduction

The competitiveness of the processing industry of any country is determined by the ability of agricultural enterprises to expand the volume of raw materials with constant destructive fluctuations in production risks, which ensure the dying of outdated forms and methods of management, but at the same time destroy the viability of a coherent system of economic relations between market participants. The risk is particularly vulnerable to the integral associations of agricultural enterprises and processing enterprises, as the impact of cyclic macroeconomic fluctuations leads to the crisis of the economic genesis of the agro-industrial complex.

Accordingly, the cumulative influence of factors of macro- and microenvironment increases the destructiveness of agricultural production, which requires the management of the determining influence of production risks of agricultural enterprises on the competitiveness of the processing industry in a holistic system of economic relations between enterprises. The deterministic process of managing the risk of agricultural enterprises and their association with the processing industry into a coherent system of economic relations is a primary task of the state that regulates the internal strategy of competitiveness, as well as risks in the integration system of the macroenvironment. Unfortunately, this trend cannot be accurately predicted and reliably evaluated even in the presence of a large array of indicators and tools for diagnosing economic development.

At the same time, the toolkit for diagnosing the functioning of agricultural producers in the integrated system of economic relations with processing industry enterprises does not determine the levers of their sustainable development in the conditions of the uncertainty of a competitive environment and does not take into account the complexity of the insurance scenario. The insurance of production risks of indirect action which levels the competitive advantages of the development of agricultural enterprises, both at the state and local levels, does not protect the economic interests of processing industry enterprises, and also requires the use of insurance functions and risk management principles. The application of this practice in the presence of an appropriate theoretical and methodological base, adapted to the realities of the economic activity of agricultural enterprises and their unification into an integral system of economic relations with enterprises of the processing industry, can have a double benefit both for integrated enterprises and for their stakeholders – both from the point of view of managing emerging risks in their economic system, and in the potential of their re-

source system, the formation of a sufficient amount of resource provision, the level of profitability and economic growth.

Considerable attention has been paid to the cyclical competitive environment on the foundations of risk management, where the category of "risk" is studied mostly at the macro-economic level [1, 8, 9, 10, 19]. The study on the factors behind the vital activity of biological systems, which are the source of agricultural products and determine the probability of traditional business risks, common to all agro-industrial sectors of the economy, was made by Lorant and Farkas [15], Martynova [16], Nitsenko and Havrysh [18]. The theoretical foundations of the essence and importance of insurance as a tool to reduce the risks of production and a definition of probabilistic magnitude of losses received much attention of such researchers as: Trusova et al. [26].

The priority of our research is the development of anti-crisis scenarios of the inter-sectoral interaction of agricultural market participants, which minimize the impact of the production risks of agricultural enterprises, change the indicators of production and technological cycle and neutralize the crisis level of competitiveness of the processing industry.

Literature review

The development of economic relations in the chains of interaction of agricultural enterprises and subjects of the processing industry is aimed at the integration of the processes of production and technological cycles, which ensure the potential of their functioning and competitiveness. According to the concept of the theory of value, the value of the stimulating elements of production in ensuring the competitiveness of processing industry entities is distributed in the form of the following elements [12, 14]: income on invested capital (the share of profit distributed to owners, the state, accumulation and consumption funds, to depreciation, to the income of a land owner); in terms of the income of employees; in the part of income transferred to social needs, to indirect taxes as part of the market price.

At the same time, the methodological basis for ensuring the model of competitiveness of processing industry subjects is the calculation of additional value in the supply chain of agricultural raw materials to increase the volume of processing [13]. The added value calculation combines the "Input-Output" indicators in the flow of bilateral mutual benefits between agricultural enterprises and processing industry subjects. The creation of intersectoral supply chains of agricultural raw materials and their processing is determined at the country level in the process of the division of labor, which can be estimated based on the indicator of the share of intermediate imports in exports, which is usually higher for an open system of economic relations [7].

The methodology for calculating added value in the supply chain of agricultural raw materials to increase the amount of processing allocates a system of indicators: the

indicators of the participation of processing industry subjects in global value chains; the indicators of the gradual integration of agricultural enterprises into the chain system of processing industry entities; the indicators of reverse integration; the indicators of the origin of the added value of processing industry entities in gross exports and in final demand; the indicators of added value in domestic exports [17].

The interested participants of intersectoral integration are aimed at the formation of an integrated system of economic relations that neutralize production risks based on a set of interacting components that have a multifactorial impact on the competitiveness of the processing industry, in particular [12, 14]: the neutralization of the risks of the competitiveness of services for the supply of agricultural raw materials in accordance with the assessment criteria (price, quality, cost), the neutralization of risks in resource potential (technology, finance, information, personnel), the neutralization of risks of after-sales service, the neutralization of risks of the competitiveness of organizational potential (organizational structure, the organizational joint interaction of interested parties, the organizational form of management, functional structure), the neutralization of risks of the competitiveness of communication relations (with suppliers, investors, consumers, contact objects), the neutralization of risks of the competitiveness of the management system (management mechanism, a stage of management, the ability to form and use opportunities, predict the rhythm and timely respond to changes, development and provision management subsystems and the strategic direction of management).

The deterministic impact of production risks of agricultural enterprises on the competitiveness of the processing industry generates a high dynamic of information asymmetry, which actualizes the problems of a complete system of economic relations between subjects in the event of unpredictable changes in the set of factors of an external environment. This makes it possible to identify the causes that lead to crisis phenomena, and, accordingly, to the need to implement anti-crisis measures in the processing industry with the aim of leveling conflicts in the branches and sub-branches of the agro-industrial complex (the absence of or poor-quality strategy and tactics of actions regarding unfair competition, which leads to the unpredictability of the situation as part of anti-crisis risk management), with the aim of clearing the market of weak competitors and developing a stable food system in the country [4, 29]. The impossibility of making a prompt evaluation of the alternative scenarios of the deterministic impact of production risks of agricultural enterprises on the competitiveness of processing industry enterprises limits the acceleration of economic processes and connections between them in accordance with the established rules and norms of regulation of a stable production and technological cycle [5, 7].

The need to develop an integrated economic system of relations between subjects, based on mutually agreed and complementary principles, covers a wide range of regu-

latory instruments to influence the sectors and sub-sectors of the agro-food sector, and especially the processing industry. This requires a radical revision of approaches to the transformation of the methodology of establishing the standards of the competitiveness of large processing enterprises under the determining influence of production risks of agrarian business entities, oriented to a hierarchical agreement between the target orientations of the development of agriculture and their integration into the mechanism of strategic, medium-term and indicative planning of the processing industry [16, 18, 32].

This increases the uncertainty of future conditions, causes the probability of a crisis at various levels of the system of economic relations, which objectively requires a change in the principles of anti-crisis management both at the level of enterprises and at the level of regions and the country in general [9, 11]. Many export-oriented agricultural and processing enterprises are experiencing an economic downturn, with the slightest changes in world commodity markets. In order to ensure a dynamic balance, that is, minor changes in the parameters of the system of economic relations between agricultural enterprises and subjects of the processing industry, as a result of the interaction of factors-threats of external pressure; it is necessary to quickly mobilize internal factors to neutralize production risks [16].

Threats that in a competitive environment exert quasi-crisis pressure on the parameters of the system of economic relations between agricultural enterprises and subjects of the processing industry at the level of the agro-food sector of the economy are divided into three blocks according to the nature of competition [22]: 1) financial capital; 2) intellectual capital; 3) rating positions in the system of profit redistribution in the agricultural market (Figure 1).

Human resources, financial and intellectual capital are mobile resources of the processing industry. Blocking their entry by competitors means creating conditions that significantly affect the redistribution of the flow of capital and labor in favor of processing industry entities (preferential taxation of foreign direct investments (FDI), special programs for attracting highly qualified workers). If competitors eliminate such measures, then the redistribution of a part of resources goes to other branches of the agro-industrial sector of the economy [29].

In order to counteract the anti-crisis pressure in the production activity of agricultural enterprises, as suppliers of agricultural raw materials for the processing industry, they single out their urgent needs for raw materials, which are included in variable costs in production and technological cycles. At the same time, to ensure resource needs for agricultural enterprises, the concept of restrictions applies, which also imposes certain restrictions on the state of the operation of the technological cycle of processing industry subjects. This determines their ability to compete in an environment of

restrictions among other subjects of the agro-food sector of the economy and to meet current and future needs [11, 31].

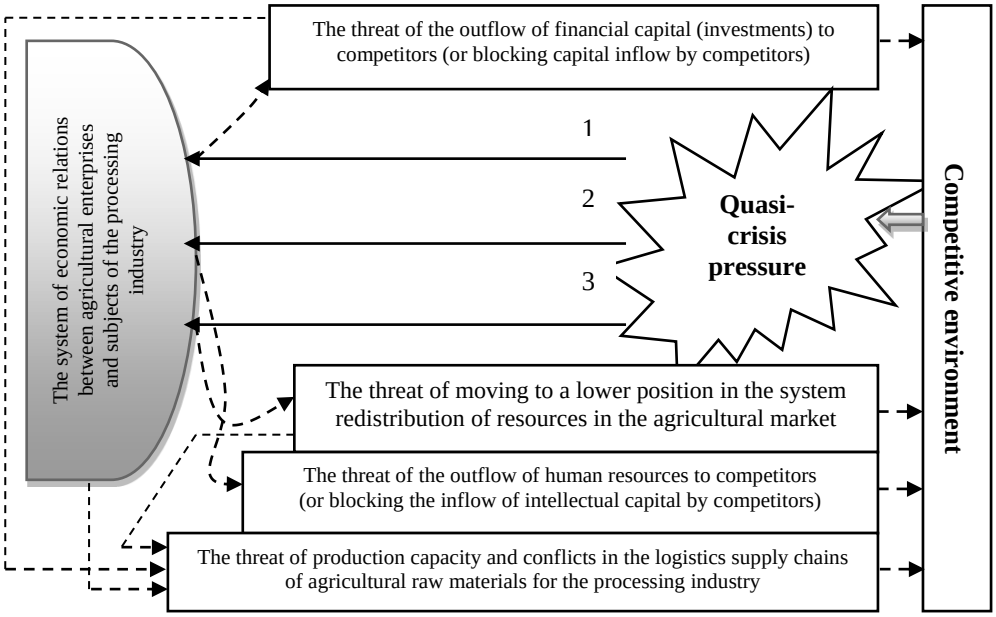

Figure 1. Quasi-crisis pressure in a competitive environment of the processing industry
Rycina 1. Presja quasi-kryzysowa w konkurencyjnym otoczeniu przemysłu przetwórczego
Explanatory notes / Objaśnienia:
Source: developed by the authors / Źródło: opracowanie własne.

The concept of restrictions in countering the quasi-crisis pressure partially alleviates the limitation of resources (including natural ones) that enter the system of economic relations between processing industry subjects and agricultural enterprises, which have full rights to agricultural land due to the regulation of legal norms and use natural resources due to internal sources [23]. Therefore, in order to prevent the development of crises associated with the lack of natural resources for the full production cycle by agricultural enterprises, it is necessary to take into account possible threats created by a competitive environment (the production capacity and technological cycle of the processing industry depend on the volume of agricultural production). Thus, quasi-crisis pressure combines an approach to competition as competition for a ranking position in the redistribution of resources between agricultural enterprises and processing industry subjects, as well as from the management of the development of the system of economic connections between them, from the standpoint of preventing risk phenomena.

The competitive environment in the agro-food sector of the economy dialectically affects the frequency and severity of risk phenomena in the system of economic relations. This impact is due to [20, 21]: 1) the strengthening of the "chain effect" of risk (due to the strengthening of the interconnection between individual elements); 2) the emergence and development of a system of economic relations of the highest rank – the national economy, for which risks are an objectively determined stage of evolutionary development; 3) increased quasi-crisis pressure (as a result of changes in competition under the influence of global challenges in the world). In addition, the constant threat of reducing the resources necessary for the functioning of the system of economic relations between agricultural enterprises and processing industry subjects brings to the fore the long-term (strategic) horizon of production risk management, focused on ensuring the minimum amount of resources to counteract the constant quasi-crisis pressure.

Materials and methods

The study relies on a multidimensional approach to the analysis of the agro-food sector in Ukraine. This approach is represented by a combination of qualitative and quantitative methods for data collection, analysis and interpretation to enhance the transparency and credibility of this research. The study analyzes the impact of the competitive environment in the agro-food sector of the economy and implications for risk management. The analysis involves applying theoretical concepts, such as the theory of competition based on resource advantages (R-A theory), the dynamic standard method and various mathematical models to understand the dynamics of economic relations, resource allocation and competitiveness within the sector.

Given the above, data on various aspects of the agro-food sector in Ukraine, including production levels, consumption patterns, market trends and trade dynamics, was collected from multiple sources (academic literature, data provided by State Statistics Service, government reports or online industry databases). The study incorporates economic indicators, such as the share of the manufacturing industry in GDP and the consumer price index for processed products. This broadens the analysis to include economic implications and the financial component of competitiveness. The study covers a significant time span (2000 ÷ 2023), allowing for a longitudinal analysis of trends. This long-term perspective is crucial for understanding the impact of crises on various parameters, such as per capita consumption, production volumes and export dynamics.

Based on the analysis, the study interprets the findings to draw conclusions about the state of the agro-food sector in Ukraine. This involves explaining the trends observed, evaluating the implications of crisis phenomena for production and consumption patterns, and assessing the industry processing competitiveness. Furthermore, the interpretation of the findings allows for forecasting future trends and assessing the im-

pact of different scenarios in the agro-food sector in Ukraine. Based on quantitative modeling techniques, the authors designed the anti-crisis scenarios of cross-industry interaction of meat-processing agro-holdings in Ukraine for 2024 ÷ 2026.

Within the framework of R-A theory [6], it is possible to create new anti-risk measures that ensure high financial results, both for agricultural enterprises and for processing industry subjects without benefits for the redistribution of resources on the agricultural market. With the help of such an approach, it is possible to substantiate the need for anti-crisis measures, as a permanent comprehensive response to crisis phenomena and the factors that cause them. The R-A theory in the system of economic relations between agricultural enterprises and processing industry subjects is a set of ranked positions $\alpha, \beta, \gamma \ldots \omega$, each of which is characterized by its own set of aggregate resources, consumers, intermediaries, financial, information and other institutions. In general, the R-A theory determines the share of total resources (including financial income) that can be obtained by both agricultural enterprises and processing industry entities operating in a certain area of the agricultural market [6].

Achieving an advantageous position in a competitive environment, the system of economic relations between processing industry subjects and agricultural enterprises during the redistribution of resources (positions $\alpha, \beta, \gamma \ldots \omega$) provides conditions under which competitors lagging behind the leader cease their activities. In addition, they occupy an unfavorable position in the system (for example, δ or ω) or participate in competition for a position of higher rank (for example, α) or compete with other competitors for holding positions. The introduction of a discrete set of ranked positions in the system of economic relations between processing industry subjects and agricultural enterprises simplifies the determination of the competitive position using the method of comparison with other competitors or a standard [6].

It is advisable to introduce thecompetitive space of the system of economic relations between processing industry subjects and agricultural enterprises at each point where there can only be a united enterprise (agroholding). However, such an approximation can be modeled as a set of ranked positions (for example, a position allows a company to gain greater access to resources). Accordingly, competition between joint enterprises (agroholdings) can be defined as competition for a share in resources that are redistributed through a system of economic ties between processing industry subjects and agricultural enterprises of a higher rank. Thus, competition between joint enterprises (agroholdings) is competition for a share in resources (monetary, material, human ones), which are redistributed through the respective agricultural markets of a country or through world markets. Individual agricultural enterprises and processing industry subjects, which do not function in an integrated system of economic relations, have fewer resources than are necessary to counter the quasi-crisis pressure.

In this case, production risks arise constantly, in hyper competition, which is a multi-system structure with a geographical gap in the logistic chains of product promotion [4]. If we translate the multi-system economic relations between agricultural enterprises and processing industry subjects into the plane of competitiveness risk neutralization according to the terms of its occurrence and rating $\alpha, \beta, \gamma \ldots \omega$, then this will mean that the rating of each united enterprise (agroholding) is determined by a set of critical state of competitiveness lower order (coordinate). Thus, competitive space becomes multidimensional, which complicates the set of trajectories along which the competitive positions in the ranking change [6, 9].

All this determines the importance of assessing the effectiveness of anti-risk actions in the agro-industrial sector of the economy, which are regulated by the state and which counteract the quasi-crisis pressure in the current and future periods. To assess such compliance, the methodological approach called the "dynamic standard method" [16] is the most suitable, which allows the system of economic relations between agricultural enterprises and processing industry subjects to develop ideally. The real trajectory of system development may be similar to the ideal one.

Accordingly, the effectiveness of a strategy chosen for the development of the system of economic relations between agricultural enterprises and processing industry subjects is evaluated by the degree of similarity: the closer the development of the system is to the ideal trajectory, the higher the effectiveness of the strategy, and vice versa. To assess the trajectory of the strategic development of the system of economic relations between agricultural enterprises and processing industry subjects and to prevent risky events in a competitive environment, it is advisable to use five indicators (Table 1).

The quantitative value of the correspondence of the development of the system of economic relations between agricultural enterprises and processing industry subjects, from the standpoint of the anti-crisis scenarios of the inter-sectoral interaction of agricultural market participants in a competitive environment, is calculated as the normalized degree of similarity between the matrices S:

$$S = \left(1 - \frac{\sum_{i=1}^{m} \sum_{j=1}^{m} \left| F_{ij} - N_{ij} \right|}{2 \times R} \right) \times 100 \qquad (1)$$

where *Fij*, *Nij* – the elements of the actual and reference matrices, respectively; *m* – the total number of indicators selected for evaluation; *R* – the number of elements of the reference matrix, the value of which is non-zero.

Table 1. The indicators of the development of the system of economic relations between agricultural enterprises and processing industry subjects from the standpoint of anti-crisis scenarios of the inter-sectoral interaction of agricultural market participants in a competitive environment

Tabela 1. Wskaźniki rozwoju systemu powiązań gospodarczych przedsiębiorstw rolnych z podmiotami przemysłu przetwórczego z punktu widzenia antykryzysowych scenariuszy interakcji międzysektorowych uczestników rynku rolnego w otoczeniu konkurencyjnym

Indicator	Indicator	Correlation	Interpretation of ratios of the indicators
1	Export of products (X_1)	$D(X_1) \geq D(X_2)$	The share of agricultural enterprises and processing industry subjects increases during the redistribution of resources in the agricultural market.
2	GDP, (X_2)	$D(X_2) \geq D(X_3)$	An increase in the productivity of the use of the production cycle of agricultural enterprises and the production capacities of processing industry subjects in the presence of aggregate human capital and financial resources.
3	Capital Investments, (X_3)	$D(X_3) \geq D(X_4)$	An increase in human capital, an increase in the amount of financial resources involved, which are directed to the expansion of the production and technological cycle.
4	The amount of FDI, (X_4)	$D(X_4) \geq 1$	Agricultural enterprises and processing industry subjects in an integral system of economic relations attract more financial resources from the world market
5	The share of the economically active population that is involved in the production and technological cycle of the combined enterprises of the processing industry, (X_5)	$D(X_5) \geq 1$	The growth of employment and an increase in human capital in the combined enterprises of the processing industry.

Explanatory notes / Objaśnienia: D(X_i) – the growth rates of indicators, % compared to the previous period / D(X_i) – stopy wzrostu wskaźników, % w stosunku do poprzedniego okresu
Source: developed by the authors / Źródło: opracowanie własne.

If, S = 100 %, then the development of the system of economic relations between agricultural enterprises and processing industry subjects (the system of the national agro-food sector of the economy or the system of another rank) corresponds to the anti-crisis scenarios of the inter-sectoral interaction of agricultural market participants in a competitive environment. In another case (S = 0 %), the dynamics of the system do not fully correspond to the anti-crisis scenarios of the inter-sectoral interaction of agricultural market participants in a competitive environment.

A combined methodical approach to the implementation of the anti-crisis scenarios of the inter-sectoral interaction of agricultural market participants is proposed in order to determine the optimal parameters of an open three-sector model, which takes into account the sufficiency of resources in the system of economic relations between agricultural enterprises and processing industry subjects in a competitive environment. The insufficient development of this system is one of the determining factors of the risk of the competitiveness of the combined enterprises (agroholdings) of the processing industry, under the influence of quasi-crisis pressure. As demonstrated in this model, from the point of view of the sectoral development of agricultural enterprises and processing industry subjects, the anti-crisis scenarios of the inter-sectoral interaction of agricultural market participants are divided into: material (zero) – production (agricultural raw materials, semi-finished products, other consumables in the production process); fund-forming (first) – the production of fixed assets (buildings, structures, machines, equipment, energy devices, other industrial investment resources); consumer (second) – the production of consumer goods. In this case, the technological component of the competitiveness of the combined enterprises (agroholdings) of the processing industry is considered invariant with the help of linear homogeneous neoclassical functions (subsystems) [20, 28]:

$$X_i = F_i(K_i, L_i), i = 0,1,2 \tag{2}$$

where X_i, K_i, L_i – is the volume of production at market prices, physical capital and the number of employed people in the i-th united enterprise (agroholding) of the processing industry.

Since we took similar functions as the basic parameters of the model (1) [20], we must assume that time changes continuously, the investment lag is zero, and the depreciation coefficients of fixed capital in the processing industry are growing. The employment rate of economically active population in the processing industry is a constant value. In addition, we assumed that depreciation coefficients are the same, and the quota coefficient for the import of investment resources and the ratio of world prices for agricultural raw materials (semi-finished products of the processing industry) and investment resources are constant.

The following elements were introduced: ν – the growth rates of employment of the able-bodied economically active population in the processing industry (i.e. as determined in the model [31], $L = L(t) = L(0)e^{\nu t}$); $\theta_i = \frac{L_i}{L}$ – the share of the *i*-th combined enterprise (agroholding) of the processing industry in the distribution of human resources in the agro-food sector of the economy; s – the share of the *i*-th joint enterprise (agroholding) of the processing industry in the distribution of investment re-

sources in the agro-food sector of the economy; $k_i = \frac{K_i}{L_i}$ – the sectoral labor productivity of the *i*-th combined enterprise (agroholding) of the processing industry; $\frac{X_i}{L_i} = F_i(k_i,1) = f_i(k_i)$ – the share of the import of agricultural raw materials in the total volume of raw materials of the joint enterprise (agroholding) of the processing industry; $y_0 = \frac{Y_0}{L}$ – the share of the import of investment resources in the total amount of investments of the joint enterprise (agroholding) of the processing industry; $y_1 = \frac{Y_1}{L}$ – the share of the import of semi-finished products in the total volume of products of the joint enterprise (agroholding) of the processing industry; $y_2 = \frac{Y_2}{L}$ – the coefficient of quota of agricultural raw materials; γ_0 – the import quotas of investment resources; γ_1 – the quota coefficient of the import of semi-finished products; γ_2 – is the share of the export of agricultural raw materials (semi-finished products) of the joint enterprise (agroholding) of the processing industry; z_0 – is a world price for exported semi-finished products (agricultural raw materials); q_0 – is a world price for imported investment resources, agricultural raw materials (semi-finished products); q_1^+, q_2^+ – is direct production costs per unit of production of the *i*-th united enterprise (agroholding) of the processing industry; a – is the depreciation rate of fixed capital (the same for all combined enterprises (agroholdings) of the processing industry); μ – is the coefficient of the depreciation of physical capital (the same for all sectors); $\lambda = \mu + \nu$ – is the coefficient of the reduction of capital equipment due to the depreciation of fixed capital and an increase in the number of employees.

The share of produced products per one united entity of the processing industry in the agro-food sector of the economy is introduced [20, 28]:

$$x_i = \frac{X_i}{l} = \theta_i f_i(k_i), i = 0, 1, 2 \tag{3}$$

where x_i – is the productivity of the *i*-th united enterprise (agroholding) of the processing industry in the agro-food sector of the economy.

The dynamic trend of the accumulation of investment resources by joint enterprises (agroholdings) of the processing industry in the agro-food sector of the economy is determined by the differential equation [20, 28]:

$$\frac{dk_i}{dt} = -\lambda k_i + \frac{s_i}{\vartheta_i}(x_i + y_i), k_i(0) = k_i^0 \; i = 0, 1, 2. \tag{4}$$

Accordingly, the equation of the balance of the use of resources for the formation of the competitiveness of the combined enterprises (agroholdings) of the processing industry in the agro-food sector of the economy will have the following form for [20, 28]:

$$\theta_0 + \theta_1 + \theta_2 + \theta_i = 1, 0 \le \theta_i \le 1 \tag{5}$$

the balanced supply of economically active human resources [31]:

$$s_0 + s_1 + s_2 + s_i = 1, 0 \le s_i \le 1 \tag{6}$$

the balanced supply of agricultural raw materials (balance of production):

$$(1 - a_0)x_0 = a_1x_1 + a_2x_2 + a_ix_i + z_0 \tag{7}$$

the balanced supply of agricultural raw materials and semi-finished products of the processing industry to the world market:

$$q_0z_0 + q_1^+z_1 + q_2^+z_2 + q_i^+z_i = q_0y_0 + q_1^+y_1 + q_2^+y_2 + q_i^+y_i \tag{8}$$

the balanced supply of agricultural raw materials and resources:

$$y_0 \le \gamma_0x_0 \tag{9}$$

the balanced provision of technological equipment:

$$y_1 \le \gamma_1x_1 \tag{10}$$

the balanced provision of the domestic agricultural market with the products of the processing industry [20, 28]:

$$y_2 \le \gamma_2x_2 \tag{11}$$

Therefore, the system of economic relations between processing industry subjects and agricultural enterprises depends on a competitive environment. At the same time, no less important in the future period are the anti-crisis scenarios of the inter-sectoral interaction of agricultural market participants, which allow for combining agricultural enterprises and processing industry subjects into agroholdings in order to prepare them for a crisis during a probable conflict (in particular, an armed conflict in the country).

Since the system is constantly under quasi-crisis pressure, both from the country (due to internal contradictions) and from the outside (from competitors), the anti-crisis scenarios of the inter-sectoral interaction of agricultural market participants are designed to coordinate the main sources of resource formation to counteract this pressure in a competitive environment. However, it should be remembered that the anti-crisis scenarios of the intersectoral interaction of participants in the agricultural market of

any country may face hyper-competition of the world market, since in most countries of the world, with the sufficiently developed agro-food sector of the economy, there are restrictions on the production of resources that are distributed among all competitors, and their number is increasing under globalization.

Results

Transformational processes in the agro-food sector of the economy of Ukraine caused by crisis phenomena and associated with the full-scale military invasion of the aggressor country on the territory of the state, provoked a threatening downward trend in the production of agricultural enterprises. This had negative consequences for the competitiveness of the processing industry. According to the structure of the consumer basket, the level of the provision of agricultural and processing industry products in Ukraine is deteriorating. Hence, if the amount of meat and milk decreases, then the processing products of the grain and oil group will increase, causing a shortage of proteins, vitamins, macro- and microelements of animal origin, which will lead to "hidden hunger" [7].

In addition, the negative dynamics of food quality deterioration are observed. During the period 2000 ÷ 2022, the share of the consumption of products of animal origin was lower than the established norm and varied from 23.0 to 29.7 %. In 2022, the average per capita consumption of food products decreased in almost all food groups, in particular, the annual consumption of meat decreased by 55 % (beef and poultry, especially low-fat varieties of meat), milk – by 51 %, fish – by 46 %, eggs – by 16 %, vegetables – by 8 %, fruit – by 55 %, sugar – by 36 %.

The production of products of the grain and oil group is the main raw material for the processing industry. However, in 2022, almost 12 million hectares of arable land were lost due to military operations and the occupation of the southern regions of Ukraine. This caused the loss of 72.4 % of agricultural raw materials for the grain-processing and oil-processing sub-sectors of the agro-food sector of Ukraine (Figure 2).

The volume of production by agricultural enterprises of raw materials of livestock origin for the meat processing industry of Ukraine is presented in Figure 3.

For example, the volume of beef production in 2018 ÷ 2023 decreased by 10.1 %, pork – by 23.5 %, poultry – by 6.6 %, and milk – by 49.1 %. In 2022, in Ukraine, the raw material component of agricultural enterprises in the field of animal husbandry, in relation to the level of 2021, suffered large losses. Accordingly, meat processes and milk processing complexes in Ukraine received raw materials from agricultural enterprises in the following proportion: beef meat – by 25.0 %, pork – by 42.0 %, poultry – by 32 %, milk – by 18.9 %. In 2023, in relation to 2022, a slight increase in the volume

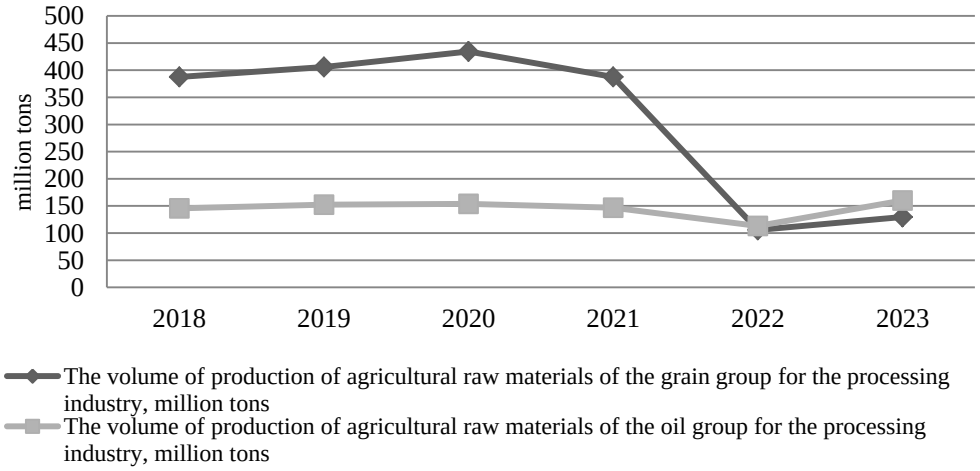

Figure 2. The volume of production of agricultural raw materials of the grain and oil group in Ukraine for the processing industry in 2018-2023 [million tons]

Rycina 2. Wielkość produkcji surowców rolnych grupy zbożowo-olejowej na Ukrainie dla przemysłu przetwórczego w latach 2018-2023 [mln ton]

Explanatory notes / Objaśnienia:

Source: developed by the authors based on the data [3, 24, 25] / Źródło: opracowanie własne na podstawie danych [3, 24, 25].

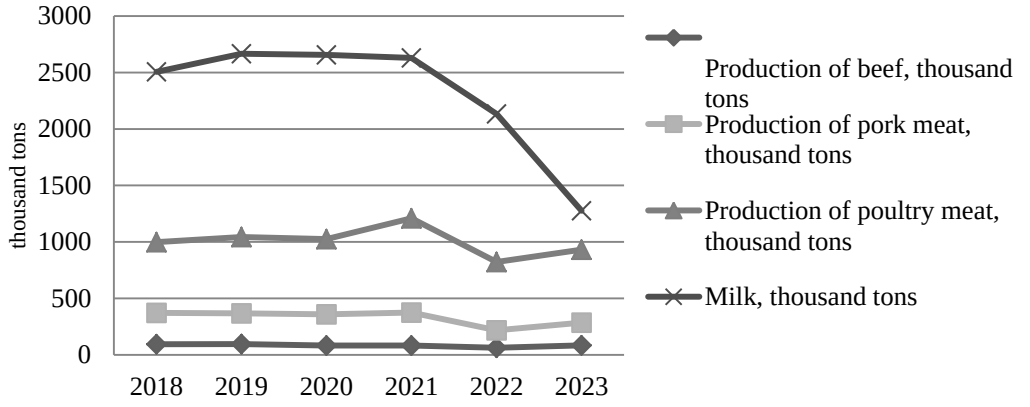

Figure 3. Volume of production of raw materials of animal origin for the meat processing industry of Ukraine for 2018-2023 [thousand tons]

Rycina 3. Wielkość produkcji surowców pochodzenia zwierzęcego dla przemysłu mięsnego Ukrainy w latach 2018-2023 [tys. ton]

Explanatory notes / Objaśnienia:

Source: developed by the authors based on the data [3, 24, 25] / Źródło: opracowanie własne na podstawie danych [3, 24, 25].

of the production of raw materials of the livestock industry for the meat processing sub-complex of the agro-food sector of the economy was outlined. Thus, beef production increased by 34.9 %, pork – by 31.1 %, poultry – by 13.4 %.

The space for neutralizing the crisis of the competitiveness of the meat processing industry in Ukraine is the final result of the activities of the participants of the agricultural market, which is formed in the system of limited resources of agricultural enterprises that are included in the integral infrastructure of the meat processing industry. At the same time, the polarized space of the meat processing industry in the market of meat products and semi-finished products must meet the needs of consumers in accordance with the established regulatory volume, while maintaining the opportunity to expand its own capabilities in the country and outside. Thus, after the decline of meat processing production in Ukraine from 2022, in 2023, its growth by 15.5 % is observed. Ukrainian producers of the meat processing industry have potential opportunities to enter the world markets of beef products in the USA, Germany and Switzerland. One of the important aspects of state policy in the meat processing industry as a whole is the composition, dynamics and structure of the import and export of meat products in Ukraine (Figures 4 ÷ 5).

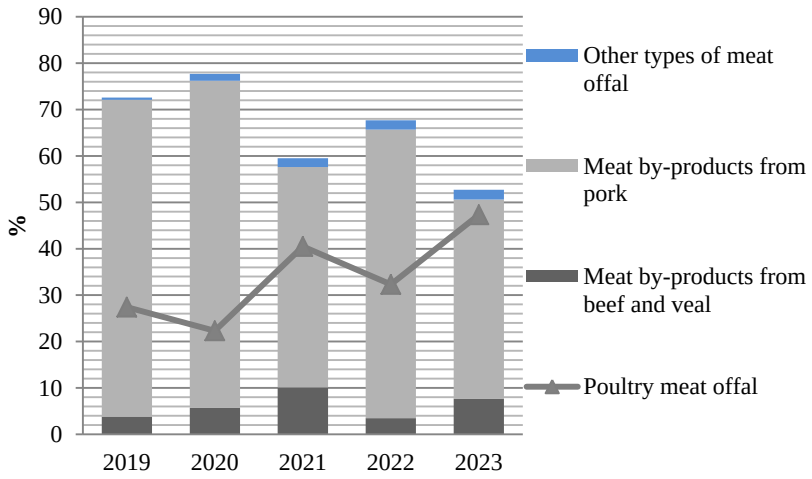

Figure 4. The import of meat processing products in Ukraine [%]
Rycina 4. Import produktów przetwórstwa mięsnego na Ukrainę [%]

Thus, the export of beef and veal offal in 2019 ÷ 2023 increased by only 17 %, from pork – decreased by 70 %, and from poultry meat – increased by 21 %. In 2022, compared to 2021, the export of by-products of meat processing complexes decreased for all types: beef and veal – by 24 %, pork – by 82 %, poultry meat – by 23.7 %. In 2023, compared to 2022, there is a tendency to increase the export of these types of

meat processing products: beef and veal – by 28.2 %, pork – by 2.3 times, poultry meat – by 56.8 %. Poultry products continue to be supplied to Egypt and EU countries.

The level of the crisis of the competitiveness of the entities of the Ukrainian processing industry in the state of war inUkraine (2022 ÷ 2023) ranged from approximately 9.1 % to 16.0 %, while in 2021 it was 3.3 %, and in 2020 – only 0.5 %. The real share of the manufacturing industry in GDP in 2022 decreased by 29.1 %, while in 2020 it was 19.4 %, in 2021 it was 13.9 %. At the same time, the fluctuations of the consumer price index for the products of the processing industry had a dynamic nature.

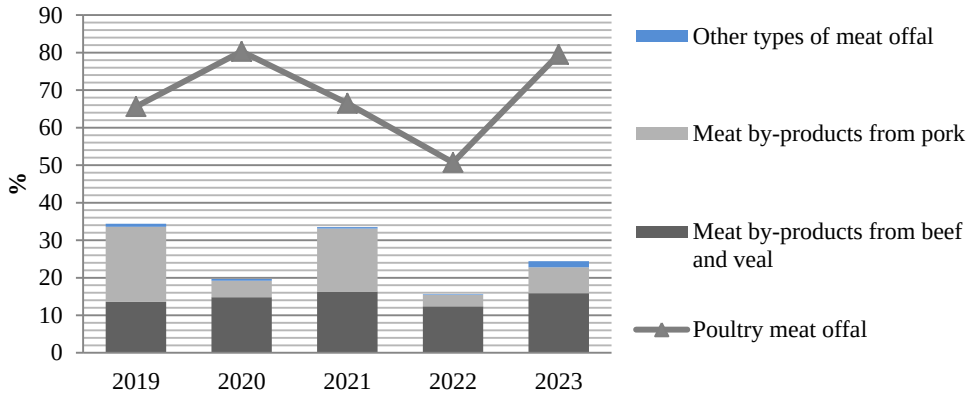

Figure 5. The export of meat processing products in Ukraine [%]
Rycina 5. Eksport produktów przetwórstwa mięsnego na Ukrainę [%]
Explanatory notes / Objaśnienia: Source: built by the authors from the data [3, 24, 25] / Źródło: opracowanie własne na podstawie danych [3, 24, 25].

Thus, in 2020 ÷ 2021, the prices for the products of the processing industry increased by 2.4 % and by 10 %, respectively, in previous years. In 2022, due to hostilities in the country, consumer prices for processed products rose 2.7 times. In 2023, due to the shortage of Ukrainian agricultural raw materials, the greater part of which was supplied from the regions of the Steppe zone of Ukraine, the price trend for processed products increased by 6 % from the level of 2022 (Figure 6).

The financial component of the level of competitiveness, which ensures the performance of the production and technological cycle in meat-processing sub-complexes united with agricultural enterprises (agroholdings), is formed at the local level and depends on the competitive environment in the domestic market of Ukraine (Figure 7).

At the same time, the neutralization of the competitiveness crisis in Ukrainian meat-processing agroholdings is taking place with the participation of private foreign investments. This makes it possible to ensure a low level of risk, quick payback of

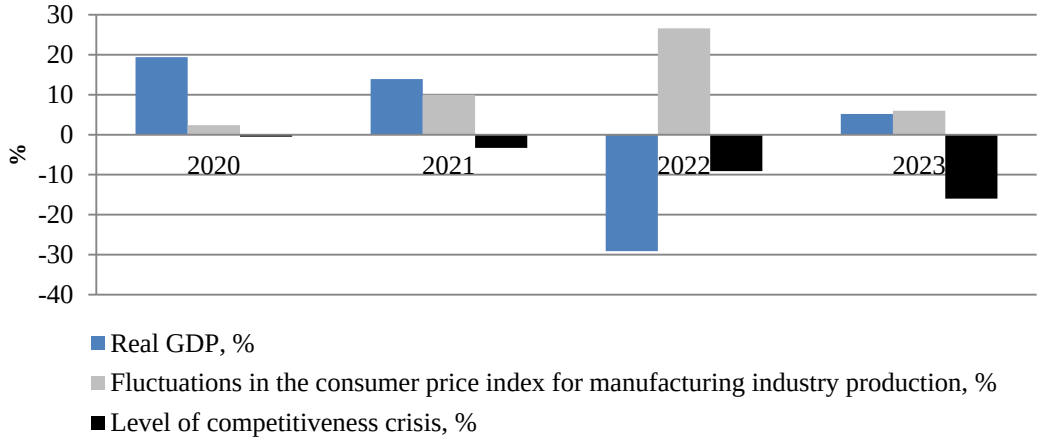

Figure 6. The level of the crisis of the competitiveness of the processing industry of Ukraine for 2021 ÷ 2023 [%]

Rycina 6. Poziom kryzysu konkurencyjności przemysłu przetwórczego Ukrainy w latach 2021 ÷ 2023 [%]

Explanatory notes / Objaśnienia: Source: developedby the authors based on the data [3, 24, 25] / Źródło: opracowanie własne na podstawie danych [3, 24, 25].

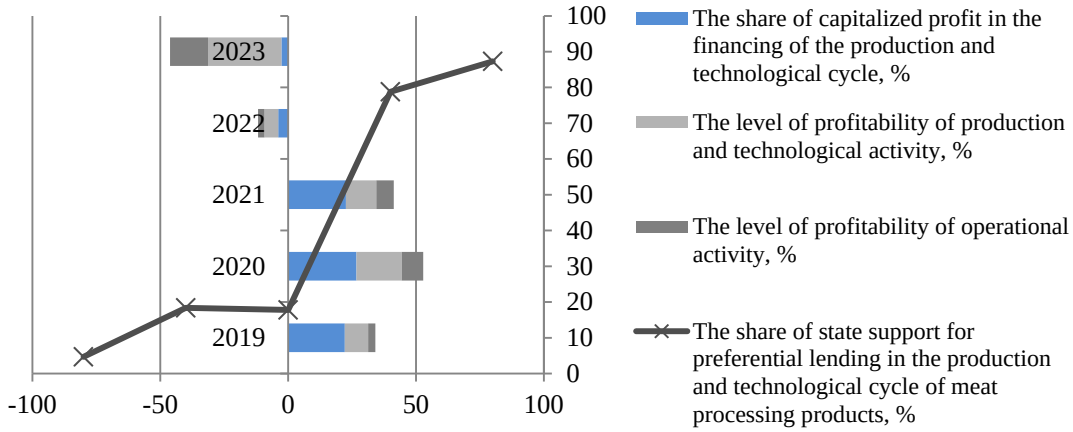

Figure 7. The financial process of the production and technological cycle in meat-processing sub-complexes united with agricultural enterprises (agroholdings) for 2019 ÷ 2023 [%] (on average for the region of Ukraine without taking into account the occupied territories)

Rycina 7. Proces finansowy cyklu produkcyjno-technologicznego w podkompleksach przetwórstwa mięsnego połączonych z przedsiębiorstwami rolniczymi (agroholdingami) na lata 2019 ÷ 2023 [%] (średnio dla obwodu Ukrainy bez uwzględnienia terytoriów okupowanych)

Explanatory notes / Objaśnienia: Source: developed by the authors based on the data [3, 24, 25] / Źródło: opracowanie własne na podstawie danych [3, 24, 25].

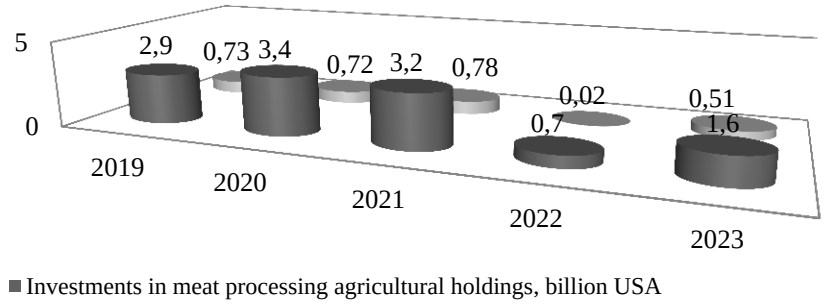

Figure 8. The volume of private foreign investments in meat-processing agroholdings of Ukraine for 2019 ÷ 2023, [billion USA]

Rycina 8. Wielkość prywatnych inwestycji zagranicznych w gospodarstwach rolnych zajmujących się przetwórstwem mięsnym Ukrainy w latach 2019 ÷ 2023, [mld USA]

Explanatory notes / Objaśnienia: Source: developed by the authors based on the data [3, 24, 25] / Źródło: opracowanie własne na podstawie danych [3, 24, 25].

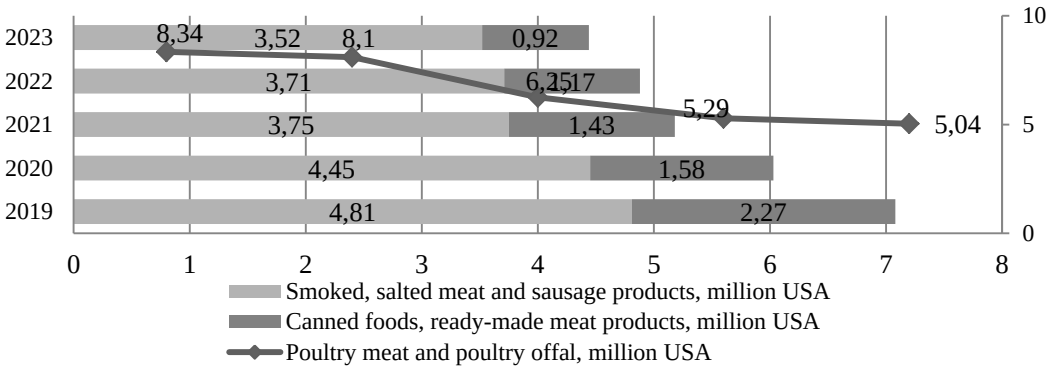

Figure 9. The volume of product sales by meat-processing agroholdings on the Ukrainian and foreign markets for 2019 ÷ 2023 [million USD] (with the support of private foreign investors)

Rycina 9. Wolumen sprzedaży produktów gospodarstw rolnych zajmujących się przetwórstwem mięsnym na rynku ukraińskim i zagranicznym w latach 2019 ÷ 2023 [mln USD] (przy wsparciu prywatnych inwestorów zagranicznych)

Explanatory notes / Objaśnienia: Source: developed by the authors based on the data [3, 24, 25] / Źródło: opracowanie własne na podstawie danych [3, 24, 25].

costs in the production and technological cycle and costs for the sale of products for Ukrainian and foreign consumers (Figure 8 ÷ 9).

In order to neutralize the crisis in the competitiveness of meat-processing agricultural holdings in the integrated system of economic relations with agricultural enter-

prises that are part of their structure, it is necessary to adhere to the optimal guidelines of the production and technological cycle and take into account the level of financial support from both private investors and the state under preferential lending.

Discussion

The system of economic relations between agricultural enterprises and processing industry subjects allows for forming their competitiveness as joint enterprises (agricultural holdings) in the agricultural market. At the same time, they can create risks in the production and technological cycle, which, with the help of regulatory insurance tools, neutralize the emergence of a competitiveness crisis. For a more in-depth interval assessment of the minimization of the crisis of competitiveness of the combined enterprises (agroholdings) of the processing industry, density curves of the distribution of the probability of accidental losses are constructed; the risk zone is determined.

The intersection of the function $f(x_1)$ and the value of the crisis of competitiveness in the case of a negative consequence (x_1) (intersection 1) – characterizes the most likely losses in the production and technological and financial cycle and risk neutralization with the expected competitiveness of the combined enterprises (agroholdings) of the processing industry on the agricultural market. The intersection of the function $f(x_{add})$ and the value of a loss in the event of a negative consequence (x_{add}) (intersection 2) – corresponds to the permissible crisis point of the competitiveness of the combined enterprises (agroholdings) of the processing industry on the agricultural market, at which losses will be equal to the sum of the loss of production, technological and financial resources (point is the upper limit (zone) of a permissible crisis of competitiveness) [30].

The probability of a crisis in the competitiveness of the combined enterprises (agroholdings) of the processing industry on the agricultural market $f(x_{add})$ is determined by the dependence (12) [30]:

$$f(x_{add}) = \int_0^{x_{add}} f(x)dx \tag{12}$$

The zone of the admissible crisis of competitiveness is the zone within which the activity of the combined enterprises (agroholdings) of the processing industry on the agricultural market does not exceed the value of the loss of production, technological and financial resources. The intersection of the function $f(x_{kr})$ and the size of the loss of resources in the production and technological cycle is the same in the event of a negative consequence (x_{kr}), (intersection 3) – characterizes the degree of the permissible crisis level of the competitiveness of the combined enterprises (agroholdings) of the processing industry on the agricultural market (i.e. the risk of financial losses,

which is equal to the estimated amount of income when the competitiveness crisis is neutralized) [30].

The probability of the critical limit of the crisis level of competitiveness $f(x_{kr})$ is determined by dependence (13):

$$f(x_{kr}) = \int_{x_{add}}^{x_{kr}} f(x)dx \tag{13}$$

The intersection of the function $f(x_{dis})$ and the value of the loss of resources in the production and technological cycle in the event of a negative consequence (x_{dis}), (intersection 4) – characterizes the catastrophic-crisis level of competitiveness (i.e. the risk of financial losses equal to the aggregate amount of resources of the combined enterprises (agroholdings) of the processing industry).

The probability of a catastrophic-critical level of competitiveness $f(x_{dis})$ is determined using the integral (formula (14)) [30]:

$$f(x_{dis}) = \int_{x_{kr}}^{x_{dis}} f(x)dx \tag{14}$$

As shown in a multi-level diagnosis of the crisis of the competitiveness of meat-processing agroholdings in the integral system of economic relations with agricultural enterprises, the authors of the study identified meat-processing agroholdings and determined multi-vector changes by types of production and technological cycle [2]. A multi-level diagnosis of the competitiveness crisis was carried out at 15 meat-processing agricultural holdings located in 15 regions of Ukraine. To form a structural-parametric configuration by types of the production and technological cycle, seven meat-processing agricultural holdings were selected, which between 2021 and 2023 implemented technological changes in production activities with the subsequent marketing of products on the Ukrainian and foreign markets.

Poly-vector changes in the competitiveness crisis of meat-processing agricultural holdings (I_{CC}), which are determined by the integral indicator of ensuring the production and technological cycle in the time period of 2021 ÷ 2023, are presented in Figure 10. The integral indicator includes capitalized profit, state preferential lending, but without financial support private investors.

Thus, seven meat-processing agricultural holdings in the regional space of the system of economic relations with agricultural enterprises have an average and high crisis level of competitiveness, since the value of the indicator is less than zero ($I_{cc} \leq 0$). This trend persists during the time period of 2021 ÷ 2023. This indicates that the combined subjects of the meat processing industry do not have enough their own or

engaged resources to optimize the production and technological cycle, which requires innovation and changes in technological capabilities with the aim of constantly increasing their positions on the Ukrainian and foreign markets. They require private investment and additional insurance regulators from the state.

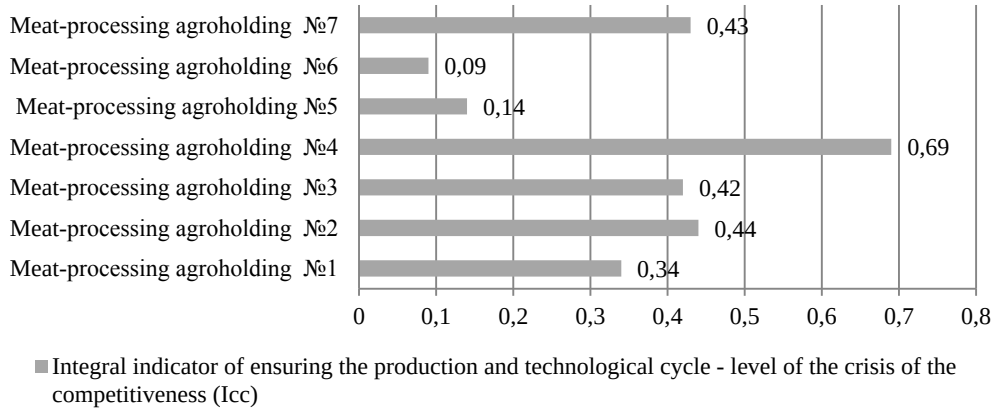

Figure 10. Poly-vector changes in the level of the crisis of the competitiveness of meat-processing agroholdings according to the integral indicator of ensuring the production and technological cycle in the time period 2021 ÷ 2023 (excluding the amount of financial support of private investors and taking into account capitalized profit and state preferential lending)

Rycina 10. Wielowektorowe zmiany poziomu kryzysu konkurencyjności gospodarstw rolnych przetwórstwa mięsnego według integralnego wskaźnika zapewnienia cyklu produkcyjno-technologicznego w przedziale czasowym 2021 ÷ 2023 (bez uwzględnienia wysokości wsparcia finansowego inwestorów prywatnych i biorąc pod uwagę skapitalizowany zysk oraz preferencyjne kredyty państwowe)

Explanatory notes / Objaśnienia: Source: developed by the authors / Źródło: opracowanie własne.

As a rule, production and market risks affect the production of agricultural and processing products in different ways and, accordingly, their negative impact in some areas is compensated by the positive ones in others. In order to minimize production risks, obtain stable financial results and gain competitive advantages, both agricultural enterprises and enterprises of the processing industry determine the criteria of specialization when implementing outsourcing, while maintaining existing methods and production volumes [27]. Instead, the diversification of production and technological cycles has both economic and social benefits – it provides more employment, ensures the fulfilment of a wider spectrum of social and material needs of the producers of the agro-industrial sector.

A number of characteristic features of ensuring the competitiveness of the processing industry, such as a long period of capital turnover and a high risk of dependence of production cycles on the supply of raw products of agricultural enterprises,

determine the need for additional resources. The dynamic development potential of the processing industry requires an increase in the amount of cash and commodity resources every year, but its risks are not covered by loan resources, hence insurance is almost the only alternative source of compensation for the loss of raw materials when the supply chains of material resources are broken and competitiveness risks are minimized. Increasing the effectiveness of the protection of the integral system of economic relations is in the interests of both agricultural producers and enterprises of the processing industry for the development of the risk management mechanism.

Insurance, like other risk transfer tools, relies on risk aversion. Meat-processing agricultural holdings, integrated into economic relations with agricultural enterprises, exhibit a negative attitude towards potential economic fluctuations. They are willing to compromise significant fluctuations that could impact competitiveness. This is reflected in the principle of useful expectations, where decision-making agroholdings assess the usefulness of accidental consequences monetarily, ranking alternatives on a single scale of preferences. The criterion is the expected value of utility, which is determined as follows [27]:

$$Eu_{(a_i)} = \sum p_j \times u(x_{ij}) \tag{15}$$

where Eu – expected utility; a_i – i-th alternative; x_{ij} – the result of the j-th result on the i-th alternative; p_j – the probability of the j-th result.

By inverting the utility function, the value is determined – the guaranteed equivalent [27]:

$$CU = U^{-1}[U] \tag{16}$$

The value of the utility function for individual consequences x_1 and x_2 is marked by points A and B. The point D characterizes the usefulness of the expected value for both consequences, i.e.: $u(E(x)) = u(p_1x_1 + p_2x_2)$. The points on the line AB are a combination of the form: a x $u(x_1)$ + $(1 - a)$ x $u(x_2)$ where $0 \leq a \leq 1$. At the point C this combination has the form: p_1 x $u(x1)$ + p_2 x $u(x_2)$, i.e. the expected utility for both consequences (Eu) [27].

The integral distribution function of random damage by differentiation by a variable value is used to determine the function of its density, which allows for easily calculating the probability of occurrence of a value of damage. To select the projected parameters of the competitiveness of the meat-processing agricultural holdings, we assume that the variable is the years of research into insurance indicators and – the indicators themselves. The empirical dependences of variables that provide an approximation of actuarial calculations are presented in Table 2.

Table 2. The empirical dependences of the variable indicators of the insurance of the production and technological cycle of meat-processing agricultural holdings in the approximation of actuarial calculations

Tabela 2. Zależności empiryczne zmiennych wskaźników ubezpieczenia cyklu produkcyjno-technologicznego gospodarstw rolnych zajmujących się przetwórstwem mięsnym w przybliżeniu obliczeń aktuarialnych

Indicators	Calculation algorithm	Sum of squares of deviations	Direction of the curve
Forecasting the optimal parameters of insurance payments for meat-processing agricultural holdings in the integrated system of economic relations with agricultural enterprises			
Insurance payments, thousand USD	$y = 3797,6 - 342,091x$	18882.804	decline
	$y = e^{8,5692-0,272655x}$	24784.264	decline
Average payment for 1 contract, thousand USD	$y = -142,483x + 2086,454$	12269.262	decline
	$y = e^{7,6614-0,1728x}$	14061.873	decline
Average payment per 1 kg of products, USD	$y = e^{2,11873-0,29717x}$	60.16	decline
	$y = 6,0127 - 0,5762x$	48.79	decline
Average payment for 1 insurance company, thousand USD	$y = -23,362x + 279,247$	107725.51	decline
	$y = e^{5,85807-0,239884x}$	14163.064	decline
Forecasting the optimal parameters of sum insured for meat-processing agricultural holdings in the integrated system of economic relations with agricultural enterprises			
Total sum insured, thousand USD	$y = 270,811 - \frac{99,648}{x}$	66742.14	growth
	$y = e^{5,4627-0,006612x}$	74888.47	decline
Average sum insured for 1 contract, thousand USD	$y = 96,5426 + 51,1721 \cdot \ln x$	21553.16	growth
	$y = 87,773444 \cdot x^{0,406012}$	23999.27	growth
	$y = 227,67 - \frac{166,74}{x}$	19273.25	growth
	$y = e^{4,6481+0,07999x}$	27389.20	growth
Average sum insured per 1 kg of products, USD	$y = 422,666 - 14,206 \cdot x$	70464.51	decline
	$y = e^{6,033933-0,041933x}$	73110.38	decline
Average sum insured for 1 insurance company, billion USD	$y = 24,697 - \frac{13,563}{x}$	1198.46	growth
	$y = 16,987 + 2,47444 \cdot \ln x$	1377.20	growth
	$y = e^{2,845133+0,012848x}$	1347.25	growth

Forecasting the optimal parameters of insurance premium for meat-processing agricultural holdings in the integrated system of economic relations with agricultural enterprises			
Insurance premiums, billion USD	$y = -0{,}3304x + 9{,}44$	124.11	falls
	$y = e^{2{,}1068 - 0{,}033527x}$	147.34	falls
Average premium per 1 contract, thousand USD	$y = -0{,}34112 + 3{,}7236 \cdot \ln x$	73.37	growth
	$y = 3{,}1433023 \cdot x^{0{,}290529}$	42.50	growth
	$y = e^{1{,}29167 + 0{,}053151x}$	37.29	growth
Average premium per 1 kg of products, USD	$y = -0{,}6488x + 13{,}9287$	240.99	falls
	$y = e^{2{,}6043 - 0{,}063988x}$	249.77	falls
Average premium per 1 insurance company, billion USD	$y = 739{,}305 - \frac{322{,}816}{x}$	13623.015	growth
	$y = 614{,}543 + 20{,}001 \cdot \ln x$	14325.777	growth
	$y = e^{6{,}396267 - 0{,}013958x}$	14948. 937	falls

Explanatory notes / Objaśnienia: Source: developed by the authors / Źródło: opracowanie własne.

Thus, meat-processing agricultural holdings in the integrated system of economic relations with agricultural enterprises provide financial protection against risky consequences that lead to the loss of resources in the production and technological cycle and which have a probabilistic variable, which is determined and reimbursed after the occurrence of the insured event.

After the analysis and unification of risks in the competitive environment of the investigated five meat processing agricultural holdings, anti-crisis scenarios of their cross-industry interaction with agricultural enterprises were determined according to the indicators that best describe the parametric data of the level of competitiveness for the period from 2024to 2026 (Figure 11).

Thus, the competitiveness of the processing industry depends on the effect of multifactorial risks of various modifications. The conditionality of their influence makes it possible to establish parametric limits for neutralizing the risks of the production activities of agricultural enterprises in the future. The level of competitiveness of meat-processing agricultural holdings directly depends on their dynamic development, which is influenced by the indices of agricultural raw materials, price indices for by-products and processed products, preferential credit rates, the volume of cash flows from private investments and state financial assistance, and the level of insurance payments. Protection against risks arising at the local level must be carried out according to the matrix of the indicative assessment of the production and technological cycle, which captures anti-crisis scenarios of inter-branch relations between the united enterprises of the processing industry in accordance with clearly defined rules.

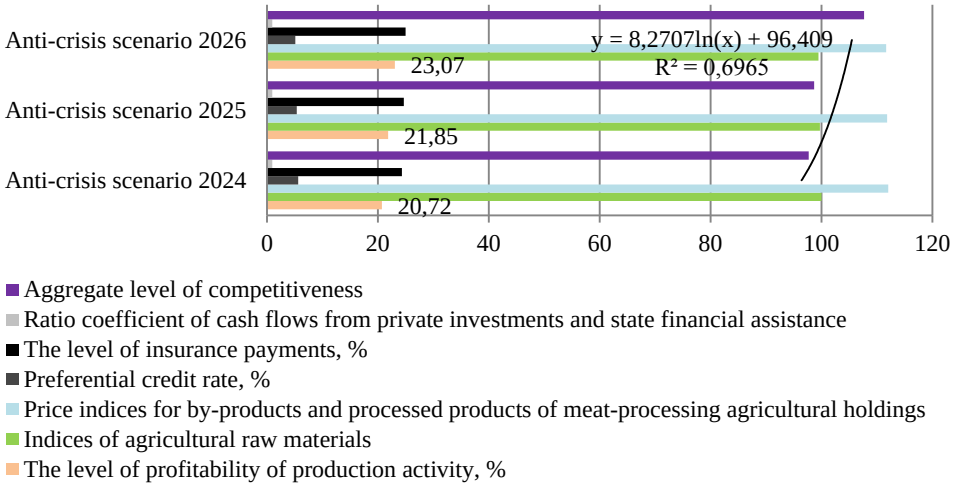

Figure 11. Anti-crisis scenarios of cross-industry interaction of meat-processing agroholdings in a holistic system of economic relations with agricultural enterprises to neutralize crisis factors of competitiveness for 2024 ÷ 2026

Rycina 11. Antykryzysowe scenariusze interakcji międzybranżowych gospodarstw rolnych przetwórstwa mięsnego w holistycznym systemie powiązań gospodarczych z przedsiębiorstwami rolniczymi w celu neutralizacji czynników kryzysowych konkurencyjności na lata 2024 ÷ 2026

Explanatory notes / Objaśnienia: Source: developed by the authors / Źródło: opracowanie własne.

Conclusions

1. Thus, the anti-crisis scenarios of inter-sectoral interaction of agricultural market participants, which minimize the impact of the production risks of agricultural enterprises, change indicators of the production and technological cycle and neutralize the crisis level of the competitiveness of meat-processing agricultural holdings, are an important impetus for the formation of a strategic model for anti-crisis support of economic processes in the agro-food sector of the state economy.
2. It is on the basis of the basic criteria of risk neutralization and insurance, as well as the development of parameters of competitive advantages in the agricultural market, that marketing communication concepts can be developed, which allow for the introduction of the export brand portfolio of processed products, with the maximum approximation of the standards of the competitiveness of the processing industry to the absolute level. At the same time, only the modernization of the material, production, technological, fund-forming and financial subsystems of the competitiveness of the processing industry will ensure the high positions of united subjects in the product market, and the anti-crisis scenarios of inter-branch interaction will allow for reproducing the innovative development of the competitiveness

of the united subjects of the processing industry in a post-war period and reconstructing their system of economic relations with agricultural enterprises.

3. The restoration of lost competitive positions will draw the attention of private investors to changes in the fund-forming subsystem of the production and technological cycle and will ensure an increase in the share of investment resources in export-oriented processing products. That is, the integrated anti-crisis scenarios of the inter-sectoral interaction of agricultural market participants in an integrated economic system should be based on all components of the communication complex, which are interconnected by such elements as a price, quality, cost, competitive potential, the competitiveness of communication relations, the competitiveness of the branding management system in the agricultural market.

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DETERMINANTY NEUTRALIZOWANIA WPŁYWU RYZYK PRODUKCYJNYCH PRZEDSIĘBIORSTW ROLNYCH NA KONKURENCYJNOŚĆ PRZEMYSŁU PRZETWÓRCZEGO

S t r e s z c z e n i e

Wprowadzenie. W artykule zbadano wpływ ryzyk produkcyjnych w przedsiębiorstwach rolniczych na konkurencyjność przemysłu przetwórczego, biorąc pod uwagę asymetrię informacji w nieprzewidywalnym otoczeniu. Praca identyfikuje kluczowe elementy stymulujące produkcję, istotne dla konkurencyjności przemysłu przetwórczego, wykorzystując teorię wartości. Powiązania gospodarcze pomiędzy przedsiębiorstwami rolniczymi a podmiotami przemysłu przetwórczego mają na celu integrację cykli produkcyjnych i technologicznych w celu zwiększenia konkurencyjności. W artykule scharakteryzowano presje quasi-kryzysowe w przemyśle przetwórczym, podając wskaźniki relacji gospodarczych pomiędzy przedsiębiorstwami rolniczymi a podmiotami przemysłu przetwórczego. Praca analizuje produkcję zbóż, olejów i surowców pochodzenia zwierzęcego dla przemysłu przetwórczego oraz ocenia stopień kryzysu konkurencyjności przemysłu przetwórczego na Ukrainie. Badane są procesy finansowe gospodarstw rolnych zajmujących się przetwórstwem mięsnym na obwodach Ukrainy, z wyłączeniem terytoriów okupowanych, z uwzględnieniem prywatnych inwestycji zagranicznych w okresie przedwojennym i w stanie wojennym.

Wyniki i wnioski. Podsumowując, metody zastosowane w tych badaniach obejmują kombinację analizy ekonomicznej, technik zarządzania ryzykiem, syntezy teoretycznej, narzędzi diagnostycznych, analizy interesariuszy i analizy systemu zasobów. Metody te zostały dostosowane, aby sprostać konkretnym wyzwaniom stojącym przed przemysłem rolnym i przetwórczym. Obliczono zmiany poziomu kryzysu konkurencyjności gospodarstw rolnych zajmujących się przetwórstwem mięsnym z uwzględnieniem cyklu produkcyjnego i technologicznego. Artykuł kończy się antykryzysowymi scenariuszami interakcji międzybranżowych mających na celu neutralizację czynników kryzysu konkurencyjności.

Słowa kluczowe: zarządzanie kryzysowe, powiązania gospodarcze, interakcja międzysektorowa, konkurencyjność przemysłu przetwórczego, ryzyka produkcyjne