

STRATEGICAL DEVELOPMENT OF AGRI-FOOD CORPORATIONS IN THE COMPETITIVE ECONOMIC SPACE OF UKRAINE

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ABSTRACT

This paper reports a study into the historical and economic preconditions for the strategical development of agri-food corporations in the competitive economic space of Ukraine. Agri-food corporations are determined by us as corporations with a developed system of integration relations that are a non-agricultural enterprise, which produces agricultural products. It has been substantiated that their emergence is not a natural phenomenon but a systematic process of changing the phases of differentiation and integration in the national economy. In this case, the development of agri-food corporations was contributed to by the lack of institutions of effective antitrust control, the diversification of industrial and financial groups, the liberalization of foreign trade, as well as a rent-oriented behavior of economic agents. It has been shown that agri-food corporations currently utilize about a third of agricultural land while the size of some of them exceeds the land-use area of entire regions.

At the same time, in terms of agricultural production efficiency, agri-food corporations outperform farms and disintegrated agricultural enterprises, as well as family-owned farms; they have more resources for the innovative development of agricultural production and for investment. Strategical development of agri-food corporations needs to develop its social responsibility in rural areas, intensification of public control over the impact on the agrarian sector, institutional system of state support of export. Under the conditions of the state regulation of monopolies and excessive corporatization of agrarian sector, agri-food corporations should constitute the core of food security in Ukraine, as well as form its competitiveness in foreign agricultural markets.

Keywords: agri-food corporation; corporatization; integration; agrarian sector of Ukraine.

1. INTRODUCTION

One of the main trends in the development of the world economy since the mid-twentieth century, and up to now, has been corporatization. The national economy of the world's leading countries is becoming increasingly dually polarized, when, on the one hand, large corporations dominate, and, on the other hand, there are small and micro-businesses. Ukraine is no exception in these processes; corporate integrated economic agents have developed in its economy, in its agrarian sector in particular.

In addition, the economic crisis in the 1990s, its effect on the agrarian sector of economy, required the Ukrainian state regulatory actions aimed at guaranteeing food security, the fulfillment of international contracts for commodity supplies, and the formation of equivalence of exchange operations. One of the reasons for the emergence and systematic strategical development of agri-food corporations that integrate into multinational corporations, monopolize agricultural markets, significantly affect the development of rural areas, and form the agrarian political lobby was the modernization processes in the agrarian sector of economy of Ukraine.

This was partly due to the active state support of such a course in the development of the agrarian sector as food security in Ukraine was associated with agricultural production based not on the rationally sized agricultural enterprises or family farms, as is the case in the developed countries of the world, but on privately-owned corporate enterprises with large land areas. At the same time, the new corporate agricultural structure is a specific pattern in the organization of large-scale agricultural production based on land concentration, horizontal and vertical integration of production mainly in the form of agri-food corporations aimed at

achieving competitive advantages through the law of vertical integration, the monopolization policy of sectoral commodity markets, rent-oriented behavior, and the maximization of various institutional effects.

In a narrow sense, the corporation is understood as a form of management that has its own characteristics of organizational structure and capital flows. The corporation is a legal entity with distributed property rights. The economic purpose of its creation is the forming, preservation and increasing of value. In social terms, a corporation is a company with the general and individual interests of the economic agents that created it. Institutionalization of corporations is a system-forming basis of a market economy, which transforms the main social institutions (Pylypenko, 2010). The corporate form of business organization, which is dominant in the world when applied to large-scale enterprises, opens wide opportunities for more complex modeling of inter-firm relations, using many options for creating integrated corporate structures based on the benefits of the corporation (Buriak, 2007).

As noted by Gagalyuk and Valentinov (2019), the institutional turbulence gives rise to agroholdings in transitional and emerging market economies, as well as in Ukraine. In such conditions a corporate agriculture based on many hired workers under a centralized management authority attracts outside capital and displays remarkable growth rates (Hermans et al., 2017). Agri-food corporations in Ukraine are large-scaled effective economic agents (Gereles & Szollosi, 2020), but carry out their activities mainly without using the principles of a social responsibility (Levkivska & Levkovych, 2017).

In turn, these processes render relevance to the task of investigating the genesis of their forming and strategical development, estimating the scale and results of activity in the competitive economic space of Ukraine.

2. RESEARCH METHODOLOGY

Corporatization is considered to be the process of institutionalization of socio-economic relations based on corporate forms. Corporatization can be carried out at all levels of the hierarchy of the economic system. Thus, at a micro-level, corporatization implies the creation of corporations as a variety of economic associations. At the macro level, corporatization of the economy should be considered as the corporatization of capital driven by a holistic institutional agent – corporation.

In the system of national accounts, the definition of “corporation” covers corporations founded as legal entities, as well as cooperatives, limited liability companies, conditional

resident units, and quasi-corporations (United Nations, 2009).

According to the Classification of Institutional Sectors of Economy of Ukraine, corporations are institutional units created specifically for the purpose of market production of goods and services and are a source of profit or other financial benefits for their owners (State Statistics Service of Ukraine, 2015). Corporations are privately owned by shareholders with the liability of each limited by the amount of capital invested in shares. Different types of business companies, cooperatives, as well as other enterprises, are corporate, including those based on private property by two or more persons. Corporations are engaged in either production or accumulation (or both) but not in the end consumption. Corporations are divided into financial, which mainly render financial services, and non-financial, which mainly produce goods and provide other (non-financial) services.

Considering the structure of gross value added, as well as the structure of intermediate consumption according to the “input–output” tables, we consider statistically significant the assessments of the agrarian sector by the type of economic activity “Agriculture, hunting, and related services”, which corresponds to the scale of the aggregate statistical data from the State Statistics Service of Ukraine.

Agri-food corporations are assessed by us as corporations with a developed system of integration relations. In general, an agri-food corporation is a non-agricultural enterprise (processing, marketing, agri-service, etc.), which produces agricultural products. Depending on the type of economic activity Andriichuk (2007) identified the following types of agri-food corporations:

- agri-food holding (direct vertical integration, when an agricultural enterprise absorbs processing);
- food-agro holding (reverse vertical integration, when processing enterprises affiliate farms or expand the scope of their activities to the production of agricultural products);
- industrial-agro holding (reverse vertical integration, when industrial enterprises that are not technologically related to agricultural activities begin to engage in agricultural production);
- trading-agro holding (reverse vertical integration, when trade and sales enterprises begin to carry out agricultural production; also, direct vertical integration, if the integrator is a supplier of tools and objects of labor for agriculture);

- financial-food-agro holding (reverse vertical integration, when banking and other financial institutions control agricultural and processing enterprises through the mechanisms of equity participation).

One of the main indicators of market concentration is the market share of the largest companies. In general, the impact of a company in the market can be judged if its market share exceeds 20%. A dominant position of an economic agent is considered when the share of the market leader exceeds 35%; or the market share of three largest economic agents (CR_3) exceeds 50%; or the market share of the six largest economic agents (CR_6) exceeds 70%.

We also have been calculated the Herfindahl-Hirschman Index (HHI) by formula (1) for estimation a market concentration trends.

$$HHI = \sum_i^n Y_i^2, \quad (1)$$

where Y_i is a market share of the i -th company, %.

The U.S. Department of Justice (2020) considers a market with an HHI of less than 1500 to be a competitive marketplace, an HHI of 1500 to 2500 to be a moderately concentrated marketplace, and an HHI of 2500 or greater to be a highly concentrated marketplace.

The source of information about the activities of agri-food corporations is public data published at the official websites of companies; research done by the Ukrainian Agribusiness Club (UCAB, 2019), the “Latifundist” (2021), as well as our own expert assessments.

Data on the yield of major crops and the productivity of agricultural animals and poultry are official information from the State Statistics Service of Ukraine (2021) for the respective years.

Information on criminal raiding activities in the agrarian sector of economy is given based on official data from the Unified Report on Criminal Offences in Ukraine, which is compiled monthly by the Prosecutor General’s Office of Ukraine (2021).

3. RESULTS

Following the disintegration of the USSR and gaining its independence, Ukraine proclaimed a course to move from the planned and administrative system to the market economy. This process in the early 1990s was carried out through privatization, the formation of various organizational forms in the countryside. Thus, as of December 18, 1990, the land was recognized as the property of the people of Ukraine and could be transferred to

permanent and temporary use by citizens and enterprises of various forms of management, in particular, on lease terms. Mechanisms of land transfer from public to private and collective property, as well as for the use by enterprises and organizations in order to contribute to the equal development of all organizational forms in the countryside were defined and legislated. As of March 27, 1991, the individual, family, private, collective, state, public, joint, including foreign investments, enterprises emerged; as well as form of their association: associations, corporations, consortiums, and concerns.

In hyperinflation conditions of 1992–1995, barter operations, as a type of incomplete and imperfect contracts, were replaced with monetary settlements for many types of products. Barter enjoyed the greatest popularity in 1996–1997 in crop production, when more than 59 % of oilseeds were exchanged, a third of all commodity grain, more than a quarter of gross potato production, etc. Barter operations in livestock were relatively less common, taking into account the perishable nature of raw materials and products of its processing. The development of barter was also contributed to by the new operators in agricultural markets – grain traders that emerged in the mid-1990s, monopolizing the channels of commodity products to harvesting and processing enterprises.

The further stage of the legalization of agri-food corporations took place in 1994. Since then, holding companies could be set up through the absorption of one business agent by others (acquisition of a controlling stake) in the privatization process or by establishing them by bodies authorized to manage state property. At the same time, setting up holding companies was inadmissible in some sectors of the economy, particularly in the sector of production and processing of agricultural produce.

It turned out in the process of privatization and redistribution of property that significant assets – shares – were scattered among the participants, making it impossible to centrally manage and control enterprises. Therefore, as of February 27, 1995, the state legalized the placement of shares of open joint-stock companies through their auction sale on the Ukrainian Stock Exchange and in its branches for money to legal entities and individuals of Ukraine, which allowed their consolidation, thereby creating powerful integrated property complexes.

However, with the development of the secondary securities market, on the one hand, the shares of individual peasants were passed to those legal entities and individuals that were in no way related to agriculture, which destroyed the basic idea of the economic agrarian reform. On the other hand, in case of a predicament or to raise additional funds, enterprises

could sell some of the corporate rights, thereby opening the way to redistribution of property through artificial bankruptcy with the subsequent repurchase.

In parallel with the process of corporatization, the process of creating industrial and financial groups began. However, the legislation regulating their activities did not suit much of the political elites because it neglected the agri-food sector of the economy, which was considered to be a promising area for financial transactions. Ultimately, given the lack of the mechanism for the creation and operation of industrial-financial groups, the latter did not become widespread, and, after September 2010, were outside the legal field and were eliminated.

In the late 1990s, the process of mass privatization almost ended and the accumulated capital began to return to Ukraine, in particular from offshore zones. As a result, super-large financial-industrial and industrial-financial groups were formed; the process of redistribution of the economic and financial space of the state started. At the same time, certain companies began to consider the agri-food sector of the economy as a free market niche.

In 2000–2010, the initial accumulation of capital due to corporatization took place under the schemes of artificial bankruptcy of enterprises and their subsequent repurchase, rarely – through criminal raiding activities and forced alienation. Thus, according to the Unified State Register of Enterprises and Organizations of Ukraine, the agrarian sector demonstrated, until 2012, an almost annual increase in the number of economic agents, mainly due to the creation of new economic societies and farms, which was contributed to by the liberal taxation conditions and providing state support for the development of agriculture (Table 1).

Table 1: Dynamics of the number of economic agents in the agrarian sector of Ukraine

Organizational-legal form	As of January, 1					
	2001	2006	2011	2014	2016	2019
Farm	35371	46663	47469	31708	34311	37247
Private enterprise	5728	9800	10174	5966	6097	6507
Collective enterprise	4518	2484	1404	150	155	154
State enterprise	1137	992	935	652	601	589
Municipal enterprise	250	478	458	230	243	267
Subsidiary company	713	1092	922	360	351	371
Foreign enterprise	32	24	27	11	10	11
Rental company	25	16	12	3	5	5
Joint venture	91	72	71	6	6	5
Corporations	2209	2336	1575	534	500	464
Limited liability company	9736	15395	15969	12325	14250	19195
Additional liability company	7	8	21	79	87	99
Full company	34	37	22	5	4	5
Limited partnership	12	12	15	9	6	5
Cooperatives	4333	3691	3206	1462	1476	1781

Consumer society	44	50	43	17	20	30
Association of legal entities	283	278	236	80	86	89
Branch (other separate unit)	912	1284	1337	587	585	599
Representation	6	1	2	26	20	21
Public organization	17	18	64	44	50	54
Other legal forms of enterprises	1335	1093	1291	1108	1058	1033
Total	66793	85824	85253	55362	59921	68526

Source: compiled by authors based on data from the State Statistics Service of Ukraine (2021).

As a result of the financial crisis in 2012, as well as the series of unregulated land and property relations, some enterprises went bankrupt and were reorganized, particularly through joining corporations. Further economic reforms, as well as the crisis phenomena over 2014–2015, contributed to the decline in the number of small economic agents in agriculture, to the accumulation of property, to the intensification of criminal raiding activities, etc. According to data from the Prosecutor General’s Office of Ukraine, 2,303 criminal raiding attacks qualified as criminal proceedings were registered during 2013–2019. At the same time, the trend of their annual increase over 2018–2019 is very negative, which indicates the inability of state and public institutions to protect the rights of private property and the freedom of business activity (Figure 1).

The consequence of structural transformations of the national economy was the diversification of economic activities of industrial enterprises, in other words, there was a complete reverse corporate vertical integration.

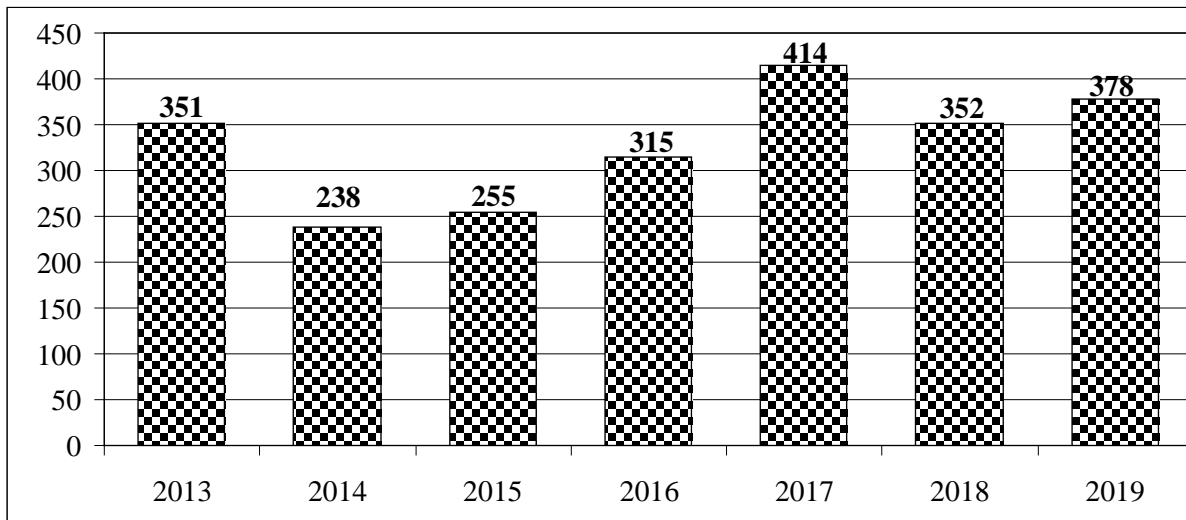


Figure 1: The number of criminal offenses, registered in Ukraine, aimed at counteracting legitimate economic activity and unlawful possession of the property of an enterprise

Source: compiled by authors based on data from the Prosecutor General’s Office of Ukraine [7].

Thus, according to data from the State Statistics Service of Ukraine, over 2000–2019 the number of joint-stock companies in agriculture decreased by 4.8 times, associations of

legal entities – by 3.2 times (Table 2).

Table 2: Dynamics of the number of corporate economic agents and their subdivisions in the agrarian sector of economy of Ukraine, units

Organizational-legal form	As of January 1								
	2001	2003	2005	2007	2009	2011	2014	2016	2019
Joint stock company	2,209	2,457	2,439	2,183	1,856	1,575	534	500	464
Associations	283	292	291	269	246	236	80	86	89
Including:									
– association	134	127	128	124	122	116	50	52	53
– corporation	24	35	34	28	27	29	6	5	5
– consortium	2	2	3	2	1	1	0	0	1
– concern	12	15	17	16	15	13	0	0	0
– other associations, holding companies	111	113	109	99	81	77	24	29	30
Union of consumer societies	8	7	5	2	2	1	0	0	0
Branch (other separate unit)	912	1,201	1,220	1,435	1,484	1,337	587	585	599
Representative office	6	8	1	1	1	2	26	20	21
Subsidiary company	713	1,037	1,125	1,082	1,009	922	360	351	371
Foreign enterprise	32	26	21	24	28	27	11	10	11

Source: compiled by authors based on data from the State Statistics Service of Ukraine (2021).

In addition, the number of branches, subsidiaries, and other separate subdivisions has significantly decreased; consumer societies and concerns have been liquidated; industry associations of agricultural producers are undergoing annual reduction.

Separately, we note that as of January 1, 2020, no holding company was registered with the type of economic activity “Agriculture, Forestry, and Fisheries”, which significantly complicates their analysis and identification. In addition, our research shows that the main economic activity of the parent companies of integrated and quasi-integrated economic agents of the corporate type, based on Classification of types of economic activity 2010, is “Activities of holding companies”, “Consulting on commercial activities and management”, “Activities of head offices”, etc.

The number of agri-food corporations operating in the agrarian sector of economy of Ukraine has not been determined exactly up to now due to the lack of accounting information about related parties. According to our estimates, about 8.5 thousand agricultural enterprises were affiliated to them in 2019, which is 12.4 % of their total quantity. As noted by Krysanov (2016), in 2016 the number of affiliated agricultural enterprises was estimated at the level of 6 thousand. According to public data, it was found that the largest number of affiliated enterprises (those which officially provided information about integrated economic agents

being their founders or co-founders, as well as those with joint managers) in 2016 was reported by UkrLandFarming PLC, Mriya Agro Holding PLC, Agroprosperis LLC, and Milkiland N. V. (Figure 2).

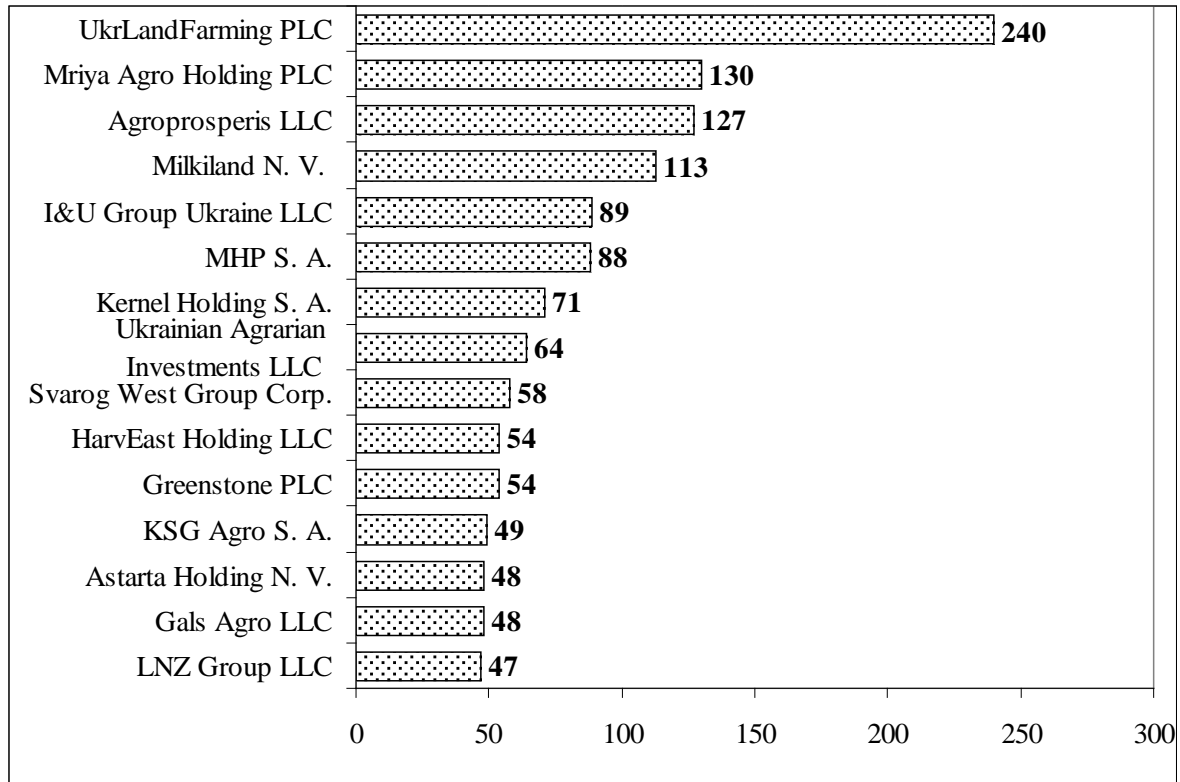


Figure 2: The number of affiliated enterprises of some agri-food corporations
 Source: compiled by authors based on public data and information from YouControl (2017).

To some extent, this information differs from the data provided in the consolidated financial statements. The reason for this is the pyramidal ownership structure of the integrated economic agents, which *de facto* makes it impossible to analyze it from the bottom-up (Almeida & Wolfenzon, 2006; Gagalyuk, 2017).

Corporatization processes in the agrarian sector of Ukraine are accompanied by an increase in land use areas by agri-food corporations. Thus, the processes of setting up corporate economic agents, which had 50–100 thousand hectares of land, occurred at an accelerated pace in 2004–2008. The established agrarian lobby was betting on the rapid abolition of the moratorium on the purchase and sale of agricultural land and the legalization of ownership of a significant number of land plots. However, the continuation of the moratorium caused an increase in the cost of maintaining these lands and payment of rent not only for the arable land but also for the non-arable land. For example, to keep under control 100 thousand ha of agricultural land, an owner had to spend several million dollars annually to pay the rent. As a result, the processes of optimization of costs of agri-food corporations,

their restructuring, and land management began.

A characteristic feature of corporations at that time was incomplete cultivation of agricultural lands controlled by them, which pointed to the purpose of accumulating land resources for further resale, rather than agricultural production.

In 2009–2012 multinational corporations began to increase the area of their land use through the acquisition of integrated property complexes of those integrated economic agents whose business model, focused on rapid payback through the sale of land, exhausted itself; they were on the verge of bankruptcy.

The crisis phenomena of 2014 finally proved that “simple” speculative schemes do not operate in the agrarian sector of economy. This was accompanied by technical defaults of Mriya Agro Holding PLC and Agroton PLC, M&A deals, increasing the social orientation of most corporate and transnational corporations that consider it as one of the competitive strategies for their development in Ukraine, considering the transnational nature of production and sales of finished products.

In 2019, the area of agricultural land, owned and used by agri-food corporations, amounted to 5.7–6.5 million hectares and increased, compared to 2005, by 6–9 times (Table 3). In terms of agricultural land area, the size of UkrLandFarming PLC and Kernel Holding S.A. in 2020 exceeded 500 thousand ha.

Table 3: Dynamics of the areas of agri-food corporations in Ukraine

Year	Arable land, million ha	Share of arable land of agro-corporations, %		
		of the total arable land in Ukraine	of the arable land of agricultural enterprises and individuals	of the arable land area of agricultural enterprises
2005	0.63–1.05	1.5–2.5	1.7–2.8	2.8–4.7
2006	1.12–1.82	2.7–4.4	3.0–4.9	5.3–8.6
2007	1.73–2.56	4.2–6.1	4.7–7.0	8.2–12.2
2008	2.81–3.61	6.8–8.7	7.7–9.9	13.4–17.2
2009	3.11–3.95	7.5–9.5	8.5–10.8	14.9–18.9
2010	4.01–4.91	9.6–11.8	11.0–13.5	19.5–23.8
2011	5.15–6.02	12.4–14.5	14.1–16.5	25.1–29.4
2012	5.64–6.47	13.6–15.6	15.5–17.7	27.3–31.3
2013	6.10–6.96	14.7–16.8	16.8–19.1	29.8–34.1
2014	5.91–6.61	14.2–15.9	16.2–18.2	28.8–32.2
2015	5.63–6.44	13.2–15.1	15.4–17.7	27.1–31.0
2016	5.71–6.39	13.4–15.0	15.7–17.5	27.5–30.8
2017	5.95–6.44	14.3–15.5	16.3–17.7	28.7–31.0
2018	5.62–6.38	13.5–15.4	15.4–17.5	27.1–30.7
2019	5.68–6.45	13.6–15.6	15.6–17.7	27.4–31.0

Source: calculated by authors based on own research, UCAB (2019), the “Latifundist” (2021), and the State Statistics Service of Ukraine (2021).

Thus, the area of each of these corporations exceeds the total area of agricultural lands

in Transcarpathian and Chernivtsi oblasts; the total area of arable land in Transcarpathian, Ivano-Frankivsk, and Chernivtsi oblasts, etc., which poses a threat to the monopolization of the rental rights market (Table 4).

Table 4: Area of agricultural lands of the largest agri-food corporations in Ukraine

Corporation	Area (as of January 1), thousand ha						
	2010	2013	2015	2017	2018	2019	2020
Kernel Holding S.A.	215.0	405.0	390.0	602.5	550.0	530.0	530.0
UkrLandFarming PLC	430.0	670.0	654.0	605.0	570.0	500.0	500.0
MHP S. A.	280.0	315.0	360.0	370.0	370.0	370.0	370.0
Agroprosperis LLC (NCH Capital Inc.)	350.0	400.0	430.0	430.0	400.0	396.0	300.0
Astarta Holding N. V.	210.0	245.0	245.0	250.0	250.0	250.0	235.0
Continental Farmers Group (Mriya Agro Holding PLC)	229.0	295.0	180.0	185.0	165.0	195.0	195.0
Epicentr Agro LLC	× ²⁾	× ²⁾	× ²⁾	116.0	111.0	121.4	160.0
HarvEast Holding LLC ¹⁾	233.0	204.0	97.0	97.0	102.0	127.0	127.0
Industrial Milk Company S.A.	37.9	120.7	136.6	137.0	129.6	123.9	123.9
Ukroprominvest-Agro LLC	96.0	108.0	122.0	122.0	116.5	116.5	120.0
Agroton PLC	151.0	160.0	122.0	151.0	110.0	110.0	110.0
Agrein Holding Limited	100.0	100.0	130.0	127.0	110.0	110.0	110.0
TAKO Group	52.0	95.0	105.0	50.0	110.0	110.0	110.0
Privat-Agroholding LLC	150.0	120.0	100.0	100.0	85.0	85.0	85.0
TAS Agro LLC	× ³⁾	× ³⁾	88.0	88.0	88.0	83.0	83.0
Nibulon S.A.	80.0	79.0	82.5	82.5	82.5	82.5	82.5
AgroVista (UkrAgroCom LLC)	63.0	64.0	75.0	75.0	82.0	82.0	82.0
Svarog West Group Corp.	82.0	78.0	80.0	80.0	80.0	80.0	40.0
Svitanok PAF	45.0	60.0	48.0	80.0	80.0	80.0	80.0
AgroGeneration	50.0	120.0	120.0	120.0	120.0	70.0	58.0

Notes. 1) Until 2011: subsidiaries of “Illich-Agro” of JSC “Mariupol Metallurgical Plant named after Ilyich”. 2) The company “Epicenter” started its activity in the agrarian sector of economy in 2015. 3) The company was set up in 2014.

Source: compiled by authors based on public data from the companies, and the “Latifundist” (2021).

Compared to 2013, the land-use area of agri-food corporations decreased due to the temporary occupation of the Crimea and some regions in Donetsk and Luhansk oblasts. At the same time, this has led to an even greater concentration of land and increased competition in the rental rights market in other regions of Ukraine, especially in Western and Central. In addition, according to the Land Matrix Initiative report in Ukraine, about 2.5 million hectares of agricultural land is under the control of foreigners (including property through third parties), and Ukraine ranks second in the world in terms of land demand (Land Matrix Initiative, 2021).

The concentration of production is objectively accompanied by the concentration of the market, the desire to achieve a monopoly on it. According to our research, in Ukraine in 2019 the most concentrated markets were meal, vegetable oils, poultry meat, eggs and sugar (Table 5).

Table 5: The concentration level in individual product markets in Ukraine, %

Market segment	2015			2017			2019		
	CR ₃	CR ₆	HHI	CR ₃	CR ₆	HHI	CR ₃	CR ₆	HHI
Wheat flour	27.8	40.7	380.0	20.6	34.1	252.5	22.1	34.7	269.2
Mixed fodder	38.9	49.4	798.4	38.2	49.3	791.9	42.7	52.0	1046.0
Milk and dairy products	25.9	43.0	390.0	26.5	41.1	364.8	34.3	58.5	688.6
Meal (soybean, bean, rapeseed)	42.2	61.3	1011.2	47.1	62.7	1133.1	51.0	64.4	1235.8
Poultry meat	79.3	93.2	4034.5	59.2	70.0	2224.1	60.3	72.8	2352.1
Soybean oil	51.2	68.6	1071.4	58.5	76.3	1376.4	46.8	75.0	1041.3
Sunflower oil (unrefined)	46.0	63.4	1118.1	64.3	77.2	2645.9	44.1	59.4	993.9
Rapeseed oil	82.1	90.3	2268.2	84.0	97.1	2555.5	65.6	92.0	1708.6
Sugar (beet)	51.6	67.0	1097.3	53.1	65.1	1088.6	59.6	73.6	1283.7
Eggs (fresh)	72.9	76.4	3296.2	45.5	49.1	970.2	50.3	58.6	1029.5

Source: compiled by authors based on public data from the companies, as well as from the “Latifundist” (2021), and the State Statistics Service of Ukraine (2021).

The leaders of all commodity markets are national and transnational agri-corporations. The gap between the leader and his closest competitor in the market is quite significant: in the market of sunflower oil – 15.0, eggs – 20.2, feed – 23.3 percentage points, etc.

In general, agri-food corporations are much better equipped with fixed and current production assets compared to other agricultural producers. Technological solutions are based on the use of highly efficient systems of production and processing of produce, the use of GPS complexes and robotics, which makes it possible not only to fully control the production process but also to ensure the quality of the finished products that meet world standards. The structure of the corporations' sown areas in general is optimal in terms of the rational ratio of crops in the crop rotations of different soil and climatic zones in Ukraine, which is better compared to agricultural enterprises.

The use of the best seeds, compliance with the full range of agrotechnical measures of cultivation provides a higher yield of major crops in the corporate integrated economic agents compared to farms of other categories (Table 6).

Table 6: The crops’ yield in Ukraine, t/ha

Economic agent	Crop	Year								
		2011	2012	2013	2014	2015	2016	2017	2018	2019
Farms of all categories	Winter wheat	33.9	28.0	34.1	40.2	38.9	42.2	41.2	37.3	41.6
	Spring barley	23.4	21.4	21.6	29.7	28.5	31.3	32.4	27.5	32.4
	Corn	64.4	47.9	64.1	61.6	57.1	66.0	55.1	78.4	71.9
	Sunflower	18.4	16.5	21.7	19.4	21.6	22.4	20.2	23.0	25.6
	Rapeseed and colza	17.3	22.0	23.6	25.4	25.9	25.7	27.9	26.5	25.6
	Soy	20.4	17.1	20.5	21.6	18.4	23.0	19.7	25.8	22.9
Agricultural enterprises	Winter wheat	34.2	28.8	35.0	41.9	40.0	43.8	42.7	38.5	43.4
	Spring barley	22.7	22.0	21.0	31.5	29.7	32.8	35.0	29.6	35.5
	Corn	68.6	51.5	68.1	66.6	61.1	72.4	59.5	87.0	77.7
	Sunflower	19.0	17.4	22.8	20.5	23.0	23.5	21.3	24.1	27.0
	Rapeseed and colza	17.4	22.1	23.7	25.6	26.1	25.8	28.0	26.5	25.7
	Soy	20.5	17.2	20.7	21.9	18.6	23.4	20.0	26.4	23.3

Private farms	Winter wheat	30.0	23.3	29.6	35.5	33.5	42.2	37.2	34.0	38.3
	Spring barley	19.8	18.2	18.1	26.2	24.4	27.9	28.7	24.7	31.1
	Corn	54.6	36.2	53.4	48.4	46.5	55.4	47.5	72.0	67.8
	Sunflower	17.1	15.5	20.9	18.2	20.8	21.2	18.8	21.9	24.5
	Rapeseed and colza	15.7	19.5	22.4	23.2	23.1	25.4	27.3	25.5	24.8
	Soy	18.8	15.0	18.9	19.5	16.5	20.3	16.9	23.2	20.5
Agri-food corporations	Winter wheat	38.7	35.4	41.8	49.8	48.0	51.1	50.2	46.0	51.8
	Spring barley	29.1	28.4	30.6	41.3	44.1	47.5	49.0	42.3	46.2
	Corn	75.0	61.5	78.2	79.5	62.7	83.4	68.3	97.1	89.3
	Sunflower	20.0	18.1	23.3	22.7	24.6	26.8	24.4	27.2	30.9
	Rapeseed and colza	21.0	23.5	25.4	28.7	29.2	25.9	30.2	28.0	29.3
	Soy	20.0	17.1	20.3	23.1	18.6	25.9	22.3	29.1	26.1

Source: calculated by authors based on public data from companies, UCAB (2019), the “Latifundist” (2021), and the State Statistics Service of Ukraine (2021).

During 2011–2019, agri-food corporations gathered per hectare, compared to the agricultural enterprises in Ukraine, on average 30–40 % more barley, 15–25 % – wheat, 10–20 % – corn, 5–10 % – sunflower seeds. The gap between them and farms is even more significant. The increase in the crop production and products of its primary processing at agri-food corporations after the crises of 2008 and 2012 led to an awareness of the need to develop livestock, except for those companies that specialized in it from the very beginning.

Over 2012–2019, the level of the concentration of livestock production significantly increased, mainly due to a decrease in it at small and medium-sized agricultural enterprises due to their unprofitability.

Despite the advanced technologies of livestock maintenance, its breed composition, and the automation of technological processes, the productivity of dairy cattle in the agricultural corporations does not far exceed similar rates at agricultural enterprises; it is lower than in the U.S., Denmark, Finland, and other countries leaders in the production of cow’s milk (Table 7).

Table 7: The average annual milk yield per one cow in Ukraine, kg

Business agent	Year								
	2011	2012	2013	2014	2015	2016	2017	2018	2019
Farms of all categories, on average	4174	4361	4446	4508	4644	4735	4820	4922	4976
Agricultural enterprises	4109	4676	4827	5027	5352	5643	6025	6190	6101
Households	4192	4276	4343	4363	4437	4473	4480	4559	4630
Agri-food corporations	4940	5040	5320	5690	6090	6150	6530	6500	6540

Source: calculated by Authors based on public data from companies, UCAB (2019), the “Latifundist” (2021), and the State Statistics Service of Ukraine (2021).

A somewhat similar situation occurred in egg farming. Thus, a significant herd of laying hens is concentrated at the Avangardco IPL poultry farms, part of UkrLandFarming PLC. The breed and species structure of the livestock is now formed in such a way that it provides almost maximum biological productivity of poultry; the company is the leader in the

production of eggs in Ukraine (Table 8).

Table 8: Basic parameters of egg poultry development in Ukraine and at the Avangardco IPL

Indicator	Year								
	2011	2012	2013	2014	2015	2016	2017	2018	2019
<i>Agricultural enterprises, total</i>									
Production of chicken eggs, million pcs.	11738.2	11977.4	12234.2	12536.2	9762.2	8067.6	8365.3	8900.3	9357.6
The average annual egg yield per laying hen, pcs.	286	293	289	276	252	244	248	247	255
<i>Avangardco IPL</i>									
Share of laying hens in their total livestock at agricultural enterprises, %	50.9	56.6	65.4	46.5	33.9	31.1	27.8	29.7	31.0
The share of production of chicken eggs of their total production at agricultural enterprises, %	50.7	52.6	57.4	50.3	35.2	31.0	28.7	29.5	30.9
The average annual egg yield per laying hen, pcs.	290	276	260	339	321	243	258	250	254

Source: calculated by authors based on public data from Avangardco IPL and information from the State Statistics Service of Ukraine (2021).

The change in the breed structure of the herd in 2015 due to the replacement of “Hy-Line” laying hens by “Lohmann Brown” and “Brown Nick” without strict adherence to the technology led to a decrease in the average annual egg production in 2016 by 24.3 %, thereby slightly worsening the competitive advantage of Avangardco IPL.

Some of the chicken eggs produced by Avangardco IPL are processed into egg products at Imperovo Foods PLC, making dry protein with the ability to beat, dry gel-forming protein, egg powder, dry ordinary and fermented yolk, which meet the international quality standards ISO 22000:2005, ISO 9001:2008, and FSSC 2200.

4. DISCUSSION

The consequences of the activities of agri-food corporations have been debated since they emerged in Ukraine. As noted by Dankevych (2014), agri-food corporations rent land mainly for monocultural agricultural production, which poses a threat to the rational and environmentally-safe use of land resources. Earlier studies of the scientists from NSC “Institute of Agrarian Economics” have shown activities of agri-food corporations lead to increasing a social tension in rural areas, with money going out of rural areas (Lupenko & Kropyvko, 2013), etc. Agri-food corporations, as well as the entire corporate model of development of the agrarian sector of economy, are based on the systematic optimization of integration relations along the value chain (Hutorov et al., 2018) and rent effects (Lupenko et al., 2018).

Ukraine has to choose between a large-scale agricultural sector or a “social” village when introducing the land market (Gagalyuk & Valentinov, 2019). Scientists Borodina and Yarovyι (2019) concluded that the strategical development of corporations in the agrarian sector of economy of Ukraine is associated with the processes of legal and semi-legal land seizure. The scientists also attribute the deterioration of the social, environmental, and economic state of rural areas to the processes of the corporatization of agriculture.

There is no doubt that any structural changes at the macro level have both positive and negative consequences. In this context, we share the Gadzalo opinion that a specific order had been formed in the agrarian sector of economy of Ukraine: from agri-food corporations to small farms for which the state had not created conditions for self-development (Yasynovskyι, 2017). Thus, we are convinced that the causes of the ills of the domestic agricultural industry are not agri-food corporations but the unbalanced state policy, the lack of strategy for the development of corporatism in the economy, and integration relations in the context of warranting food security of the state, false orientation to the dominance of small production over large production, excessive deregulation of the agro-industrial industry.

5. CONCLUSIONS

The corporate sector is dominant in the economy not only due to the concentration and integration of production but also the monopolization of economic power in the domestic and external agri-food space and politics. In general, corporatism corresponds to the paradigm of sustainable and inclusive development makes it possible to ensure the competitiveness of the national economy, to increase the investment attractiveness of the main sectors of the economy.

The central link of reproduction in the system of agrarian corporatism is agri-food corporation with a developed system of integration relations. Given the main type of economic activity of the parent company, the type and direction of integration, corporate integrated economic agents in agriculture should be divided into agri-food holdings, food-agro holdings, industrial-agro holdings, trading-agro holdings and financial-food-agro holdings. At the same time, official statistics of enterprises account for them by organizational and legal forms, limiting corporate structures to associations, corporations, concerns, consortiums and holdings.

We propose to assess the corporate concentration of the main product markets

according to the classical methodology of determining the market share of the three and six largest economic agents, as well as calculating the Herfindahl-Hirschman Index.

Our study has shown that due to the unbalanced state policy the development of agriculture in Ukraine takes place under conditions of monopolistic competition where market leaders are agri-food corporations.

The motives for transnational corporatization of the agrarian sector of economy of Ukraine are the expansion of markets for international agri-food corporations, relatively low cost of labor, land and other natural resources, minimization of transaction costs of companies, reducing transport costs and customs duties, access to state support for agricultural development, optimization tax burden, risk diversification, corporate reputation management. The basis of the economic mechanism of agri-food corporations in the agrarian sector of economy of Ukraine are rent-oriented behavior and the law of vertical integration.

The areas of land use by certain agri-food corporations now exceed the areas of four oblasts and were formed by the mechanism of lease relations. The companies themselves are built on the principles of implementation of integration relations and cover all or most stages of the chain of additional value creation.

The development of the material and technical base of agri-food corporations is much better than that at the agricultural enterprises and farms and creates the basis for the introduction of innovative agrotechnology, which affects the natural and cost performance indicators of production.

The lack of an institutional system of state financial support for exports in Ukraine currently significantly reduces the level of competitiveness of domestic products of the agrarian sector of economy in international markets. Therefore, in the context of European integration processes, there is an urgent need to reform the system of support for the export of products of final technological redistribution with the simultaneous restriction of foreign trade in raw materials and semi-finished products, and domestic movement at transfer prices.

To solve issues related to the consequences of monopoly activity of agri-food corporations, there is an urgent need for the normative identification of these economic agents as a system of related entities, for the development and implementation of the concept of advancing integration relations, for the optimization of rent policy, changes in the taxation systems of agricultural producers, and in mechanisms of distribution of state support funds.

We have defined the strategic management of corporatization as the prerogative of the state. Its mechanism should cover the motives, factors and goals of corporatization, due to the

interests of stakeholders, strategic recruitment, organization of corporate relations and control over its implementation.

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