Kyiv National University of Trade and Economics

The World Economy Department

FINAL QUALIFYING PAPER (PROJECT)
on the topic:

COMPETITIVE ADVANTAGES OF THE ENTERPRISES ON WORLD AGRO-INDUSTRIAL COMPLEX (BASED ON THE MATERIALS OF ASTARTA HOLDING N.V.)

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Kyiv National University of Trade and Economics

Faculty of International Trade and Law

World Economy Department

Educational Degree «Master»

Specialty 051 «Economics»

Specialization «International Economics»

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_____G.V. Duginets

«____» _____ 20___ .

Task

for a final qualifying paper

KOLODKO NATALIIA

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1. Topic of a final qualifying paper:

Competitive advantages of the enterprises on world agro-industrial complex (based on the materials of ASTARTA HOLDING N.V.)

Approved by the Order of KNUTE of December 12, 2020 № №3396.»

2. Term of submitting by a student his/her terminated paper: 19.11.2021.

3. Initial data of the final qualifying paper:

The object is the process of formation of competitive advantages of the enterprises on world agro-industrial complex

The subject is the theoretical and methodological principles of the competitive advantages of the enterprises on world agro-industrial complex

Purpose of the paper is to evaluate competitive advantages of the enterprises on world agro-industrial complex

4. Consultants of the research and titles of sections which were consulted:

Section	Consultant (last name and initials)	Date and signature	
		The task given	The task received
1	Kravets K.P.	25.02.2021	25.02.2021

5. Contents of a final qualifying paper (list of all the sections and subsections):

Contents

6. Time schedule of the paper:

No.	Stages of the final qualifying paper	Terms of the final qualifying paper	
		de jure	de facto
1.	Choosing and approval of the final qualifying paper topic	01.09.2020-12.12.2020	1.10.2020
2.	Preparation and approval of task for the final qualifying paper	12.12.2020-12.01.2021	25.02.2021
3.	Writing and pre defense of the 1st part of the final qualifying paper	12.01.2021 - 14.05.2021	14.05.2021
4.	Writing and preparation of scientific article	till 09.04.2021	
5.	Writing and predefense of the 2nd part of the final qualifying paper	Till 25.06.2021	25.06.2021
6.	Writing and predefense of the 3rd part of the final qualifying paper	25.06.2021-29.10.2021	27.10.2021
7.	Preparation of the final qualifying paper (title, content, introduction, references, appendences), presentation of master diploma paper on the department and predefense in the committee, additional processing, getting a review from a teacher in a related department	29.10.2021-08.11.2021	08.11.2021
8.	Additional processing, printing, preparation of material to final qualifying paper defense	09.11.2021-18.11.2021	18.11.2021
9.	Presentation of the final qualifying paper on the department and on the deanery, receiving of referrals for external peer review	till 19.11.2021	
10.	Defense of the final qualifying paper in the Examination Board	According to the schedule	

7. Date of receiving the task 25.02.2021

8. Scientific adviser of the research _____Kravets K.P.

9. Manager of the educational program _____Kravets K.P.

10. The task received by the student _____Kolodko N.S.

11. Response of scientific adviser of final qualifying paper

Scientific adviser of final qualifying paper _____Kravets K. P.
(signature, date)

Pre-defense check mark _____
(last name and initials, signature, date)

12. Conclusion on the final qualifying paper

A final qualifying paper of the student _____
(last name and initials)

may be admitted to the Examination Board.

Garantor of the educational program _____Kravets K. P
(last name and initials, signature, date)

Head of the Department _____Duginets G.V.
(last name and initials, signature, date)

«____» _____ 2021

Abstract. *Final qualifying work is aimed to solve complex questions related to management and increasing of competitive advantages of agricultural companies on the world market on the example of ASTARTA HOLDING N.V. In the work were examined key ways to increasing of competitive positions based on current market demands and assessed results of implemented measures. Practical approaches to improving financial, competitive positions were predetermined and effectiveness of such measures were evaluated.*

Keywords: *competition, competitiveness, competitive advantages, sources of competitive advantages, factors, indicators, methods.*

Анотація. *Випускна кваліфікаційна робота спрямована на вирішення складних питань, пов'язаних з управлінням та підвищенням конкурентних переваг агрокомпаній на світовому ринку на прикладі ASTARTA HOLDING N.V. У роботі було проаналізовано ключові шляхи покращення конкурентних позицій на основі поточних вимог ринку та оцінені результати впроваджених заходів. Було визначено практичні підходи до покращення фінансових, конкурентних позицій та оцінено ефективність таких заходів.*

Ключові слова: *конкуренція, конкурентоспроможність, конкурентні переваги, джерела конкурентних переваг, фактори, показники, методи.*

Contents

INTRODUCTION

The relevance of the topic is caused by need of growing potential of national agricultural companies is crisis on agricultural market caused by harvest results of 2020 and need to support Ukrainian agricultural industry, promote innovative approaches for cultivation, plant breeding and effective interaction with significant foreign buyers.

Agricultural sphere of Ukraine is the main driving industry for generating 16% gross domestic product for many years (State statistics service of Ukraine, 2016-2020). Natural conditions, geographical position, access to the sea and soils make Ukraine a significant and influential player in the world agricultural market. However, the geography of supply of Ukrainian enterprises is not too wide - most of the products come to the European market, less often - to the American or Asian.

Literature review. The topic of the paper was covered in the scientific publications of many foreign and domestic scientists. Significant scientific contribution to the study of theoretical problems of competitiveness and competitive advantages of enterprises made by the following scientists: Kotler F., Porter M., Fathutdinov R.A.; Duginets G.; Zadorozhniuk N., Mazaraki N., etc. However, the topic of assessing of competitive advantages of national agricultural companies on the world agricultural complex was not developed in works deeply, which confirms relevance of the topic.

The object of this work is the process of formation the competitive advantages of the enterprise on the world agro-industrial complex.

The subject is the theoretical and methodical principles of the formation of the competitive advantages on the international agricultural market of ASTARTA HOLDING N.V.

Purpose of the paper is to assess the competitive advantages of the enterprise on the world agro-industrial complex and propose measures to improvement of competitive positions among national and international rivals.

To achieve the defined purpose of the work, it is reasonable to perform the following **tasks**:

- research for theoretical approaches for assessing of the competitive

advantages on the world market;

- analyze world agro-industrial complex;
- assess efficiency of activity of ASTARTA HOLDING N.V.;
- research for competitive advantages of ASTARTA HOLDING N.V. on the world agro-industrial complex;
- develop complex measures and strategy for increasing of competitive positions on world agro-industrial complex for ASTARTA HOLDING N.V.;
- forecast effectiveness of implementation of proposed measures to the ASTARTA HOLDING N.V. on the world agro-industrial complex.

The author used the following **methods**: method of classification and comparison, generalization, systematization, method of synthesis (when considering the nature and structure of transnational corporations and start-up projects, determining the causes and factors of interaction between the two business structures); analytical, methods of statistical qualitative and quantitative comparison, tabular and graphical methods, method of system approach; method induction, method of scientific abstraction, generalization (for the development of recommendations on possible ways to intensify the cooperation and competitiveness); SWOT method (for identifying strengths and weaknesses, opportunities and threats to companies), PEST analysis (political, economic, social and technological factors assessment).

Practical significance of the results. Formulated and described conclusions and recommendations in final qualifying paper can be used as methodical base for improvement of competitiveness among national and international enterprises on world agro-industrial complex. Received results have practical usage which lies in next aspects: described ways of increasing competitiveness, developed steps for increasing international competitiveness, selected main drawbacks of the industry and discussed the ways of their minimization.

Approbation of the results. The main provisions of the study, which formed the basis of the final qualifying paper, were published in the collection of scientific articles of students obtaining a master's degree in "International Economics" at the

Kyiv National University of Trade and Economics "Modern Relationships in the World Economy" (Kyiv, 2021).

Structure and scope of work. The work consists of an introduction, three sections, conclusions to the sections, general conclusion and list of sources used. The total volume of the work is 67 pages of printed text and contains 12 tables, 5 figures, a list of used sources of 50 items, 5 appendices.

PART 1

RESEARCH OF COMPETITIVE ADVANTAGES OF WORLD AGRO-INDUSTRIAL COMPLEX

1.1. Theoretical approaches for assessing the competitive advantages on the world market

The high level of competitiveness of the enterprise relates to the efficiency of its economic activity, flexibility in adapting to changes in the operating environment, high quality of products and adequate pricing policy, and at the same time, is one of the defining characteristics of its further development opportunities. The strengthening of competition is accompanied by the emergence of a numerous competing enterprises both in domestic and foreign markets, increasing market requirements, which forces the enterprise to constantly develop its potential, to look for possible ways to increase the level of competitiveness by creating new competitive advantages.

The issue of competitiveness of Ukrainian enterprises in all world markets requires priority attention among the many problems facing the economic complex of Ukraine in the context of comprehensive international integration.

Since the problems of functioning and development of domestic enterprises have increased due to saturation of markets and intensity of competition in them, this makes the problem of assessing the level of competitiveness extremely relevant and predetermines the need to search for ways to form competitive advantages of the enterprise.

In the process of assessing the competitiveness of the enterprise, the strengths and weaknesses of its activities, hidden opportunities and potential threats are identified, which ultimately makes it possible to effectively plan and develop activities based on competitive advantages.

The conditions of a competitive economy require the management of enterprises to become aware of the relationships between the competitiveness of products and the competitiveness of enterprises, and from scientists - the development of modern methods of management competitiveness of products and

enterprises, the most important function of which is to assess such level. To solve these problems, it is advisable to identify and understand the economic nature of competition. There is no common universally accepted definition of the concept of "competition", but all interpretations are reduced to the fact that competition is one of the most striking features of business, the engine of economic progress, the mechanism of self-regulation of the market economy.

According to definition of the authors, competition is an economic competition of producers of the same types of products in the market for attracting more customers and obtaining maximum income in the short or long term (Duginets, 2019).

To understand the essence of economic aspects of competition, it is necessary to answer the very important question for the formation of competitive advantages and the development of a competitive enterprise strategy what should be done to capture leadership in competition, or what is the competitiveness of the enterprise and how to provide it (Mazaraki & Duginets, 2018).

Approaches to determining the concept of competitiveness:

1) System, consisting of factors that continuously interact and characterize the degree of realization of potential opportunities of the enterprise to reception and retention for a long time of competitive advantages;
2) The ability of production and economic systems to change the trajectory of development or the intended mode of operation in the process of adaptation to changes in the external environment to preserve, develop of existing of creation new competitive advantages;
3) The ability of the enterprise to obtain a synergistic effect from the rational use of existing and newly created in the process of implementation of the strategy of development of competitive advantages.

The creation of a mechanism for assessing the competitiveness and formation of competitive advantages of a business entity is a prerequisite for its survival in the market. Research of existing and formation of new competitive advantages of business entities has been paid much attention by both domestic and foreign

scientists. The most significant in this matter were the studies of Professor of M. Porter of Harvard Business School, who developed the theory of competitive advantage (Porter, 1997).

Analysing different approaches to explaining the nature of the competitiveness of the enterprise and the national economy, he concludes that the competitive advantage both in the domestic and foreign markets depends on the availability and efficiency of the use of resources at the disposal of the firm (Porter, 1997).

There are quite a number of methods for assessing the competitiveness of the enterprise and its competitive position in the market, namely, the Boston Advisory (Consulting) Group model, the model of M. Porter, GAP analysis method "McKinsey" method, method of studying the object profile, situational analysis (SWOT-analysis), PEST analysis, method of expert assessment, financial and economic method (Porter, 1997).

The above methods have certain disadvantages and advantages, which determine the possibility and feasibility of their application by domestic enterprises. There are disadvantages of methods for assessing the competitive positions of the enterprise in the target market: difficulty in determining the share of enterprises in the market, difficulties in collecting data necessary for the analysis, availability of highly qualified specialists with special training for the implementation of research work (Ilchuk et al, 2017).

It is obvious that the most complete information about the competitive advantages of the enterprise in the target market can be obtained using several methods of assessment. The methods allowing assessing the competitive position of the enterprise through efficiency of management, show at the expense of what administrative factors this or that competitive advantage have been won. Financial and economic methods result in the activity of the enterprise in the target market.

Each method allows for a specific set of factors and variables to analyse. Methodology of research is different; more often than others used for the preparation of matrices, comparative tables, conducting expert assessments. In many methods,

the authors reserve the right to choose the variables at the discretion of the researcher, which makes it possible to consider industry, technical and other specific features.

The indicators that can be used in assessing the competitiveness of a company are different and their set may differ depending on the assessment methodology used. In modern science, there are six basic approaches to determining competitiveness (Mohylnyi & Khodakivska, 2017), see table 1.1.1.

Table 1.1.1

Approaches for assessing on the competitiveness

#	Approach	Characteristics
1	Advantages over competitors	Assessment of indicators of prevailing over other market players.
2	A. Marshall's equilibrium theory	The producer has no reason to go to another state, and he reaches the maximum profit and sales level.
3	Competitiveness of the quality of products	based on the compilation of polygonal profiles on various characteristics of competence
4	Matrix methodology	implemented through the preparation of matrices and preselection of strategies
5	Structural	the position of the enterprise can be assessed through such indicators as: the level of monopolization of the industry, the presence of barriers for new businesses appearing in the market.
6	Functional	its representatives determine the ratio between cost and price, the volume of capacity utilization, the number of products manufactured and other indicators. According to this approach, competitive companies are considered, in which production and further sales of goods are better established, financial resources are effectively managed.

Source: created by author based on Mohylnyi & Khodakivska, 2017

For example, this approach is used in the company "Dan & Bradstreet" (a well-known American consulting firm), which proposed three groups of indicators, which are presented in table 1.1.2.

Table 1.1.2

Dan & Bradstreet approach of determining competitive advantages

#	Name of indicators group	Characteristics
1	Performance of production and trade activities of the enterprise	These include the ratio of net profit to net value of tangible assets, the ratio of net profit to net sales, as well as the ratio of net profit to net working capital.
2	Fixed and working capital intensity	includes the ratio of net sales to net working capital, the ratio of net sales to the net value of tangible assets, the ratio of fixed capital to the value of tangible assets, the ratio of net sales to the value of inventories and the ratio of inventories to net working capital
3	financial performance indicators	indicators such as the ratio of current debt to the value of tangible assets, the ratio of current debt to the value of inventories, the ratio of working capital to current debt, the ratio of long-term liabilities to net working capital.

Source: created by author based on official website

The last (functional) approach to determining competitiveness appears to the author of the publication as accurate and most fully reflects the market situation. The author adapted the indicators of each group to the domestic forms of financial reporting.

The most difficult is to assess the level of competitiveness, that is, to identify the nature of competitive advantage over others. Thus, the level of competitive advantage should be assessed relative to the relevant leading firm. Subject to certain requirements (identity of life cycle phases, identity of character that satisfies needs, etc.), the level of competitive advantage can be estimated as the ratio of the level of profitability of the production of this firm compared to the same indicator of the leading firm calculated for a certain perspective.

Thus, the concept of competitive advantage can be defined as those characteristics and properties of products that create a certain advantage for the firm over its direct competitors.

Each of these methods has its advantages and disadvantages; therefore, the researcher needs to compare the benefits that he can get, using a particular method

of research with those dangerous moments that may affect its result. The indicators that can be used in assessing the competitiveness of a company are different and their set may differ depending on the assessment methodology used.

Competitive advantages are concentrated manifestation of the advantage over competitors in the economic, technical and organizational spheres of the enterprise, which can be measured by economic indicators (additional profit, higher profitability, market share, sales volume). It should be emphasized that the competitive advantage cannot be identified with the potential opportunities of the company. Unlike opportunities, it is a fact, fixed as a result of real and obvious advantages. That is why in business practice, competitive advantages are the main goal and result of economic activity (Kotler, 1999)

Competitive advantages are the result of low cost of production, high level of product differentiation, reasonable market segmentation, introduction of innovations, rapid response to market needs. They can also include a higher level of labour productivity and the qualifications of production, technical, commercial personnel, quality and technical level of manufactured products, managerial skills, strategic thinking at different levels of management, reflected in economic growth. Competitive advantage can only be assessed by comparing characteristics that affect the cost of effectiveness of sales.

1.2. Analysis of world agro-industrial complex

Carrying out marketing research market of agricultural products of foreign countries, it should be borne in mind that the world the market contains more than 200 national markets with their own characteristics, which is the basis for developing a strategy for international diversification as a basic strategy for agribusiness development.

Without a detailed study of the market of agricultural products in practice it is impossible to give a correct assessment of the capabilities of domestic enterprises, as such an assessment requires a comparison of elements and its requirements with the relevant parameters of the firm. Dynamic development the world market dictates the need for constant monitoring and prospective analysis, please see figure 1.2.1.

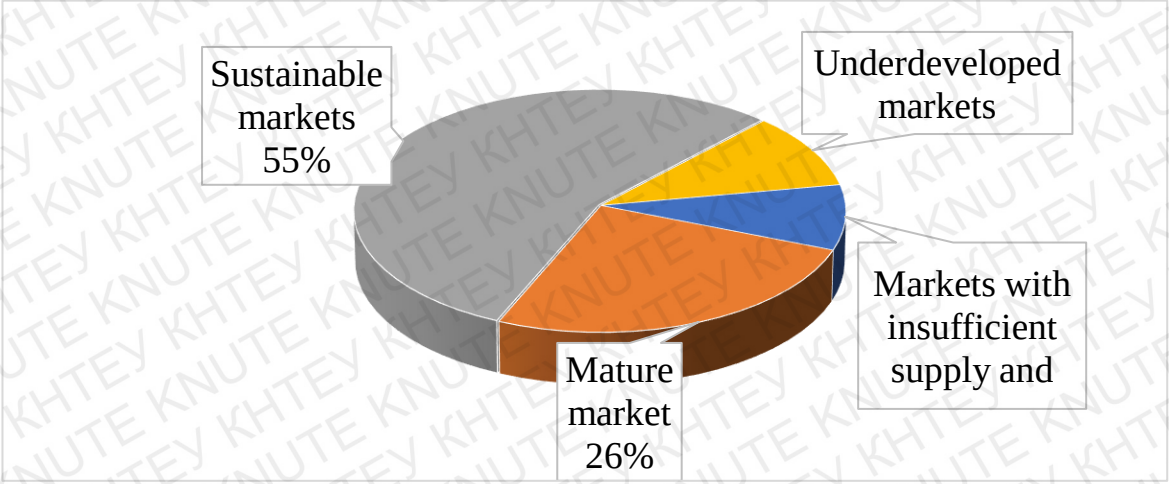

Fig. 1.2.1. Group distribution of regional agricultural markets, 2020

Source: created by author based on data from UNCTADSTAT and WTO

There is a trend in the world market of agricultural products to the stratification of market growth rates of individual countries. In particular, 18 countries in the global context belong to the category of underdeveloped markets, 10% of the world market for agricultural products have a share of agricultural products in the amount of the country's GDP 0-1%.

Another group of countries "Sustainable Markets" are Australia, Belarus, Brazil, Bulgaria, Greece, Canada, China, Mexico, Germany, New Zealand, Russian Federation, United States of America, France, Japan, they are increasing their international presence markets and account for the maximum share in the world -

55%. This is a group of markets that tend to grow (from 1% to 10%) the share of agricultural products in the amount of the GDP.

The Mature Markets group includes Vietnam, India, Moldova, Thailand, Ukraine and a number of other countries that have a share of agriculture products in the amount of runway from 10% to 25%, which is worldwide the incision is approximately 26%.

Finally, the group "Markets with insufficient supply and demand" includes the markets of countries with the largest share of agricultural products in the amount of runway (from 25% to 60%). Part of these countries is about 9% of the world market, the group includes countries Africa, Asia, island nations in the Indian and Pacific Oceans, whose main industry is agriculture, producing products are mainly for own consumption and are not sold foreign economic activity, see fig.1.2.1.

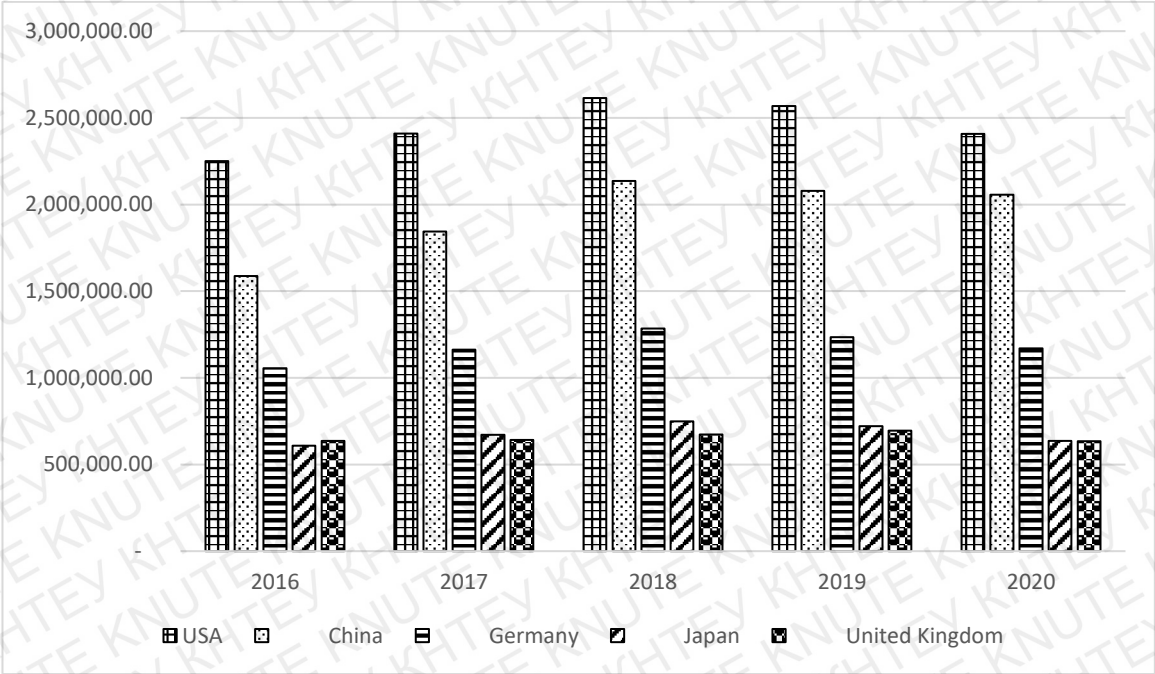

Fig.1.2.1. Analysis of TOP-5 world agricultural importers for 2016-2020

Source: created by author based on data from World Bank

Thus, large producers of certain types of agricultural products almost are always the world's leading exporters. However, China cannot be attributed to the leading exporters due to the significant number population, which forms the demand for agricultural products and limits it volumes of supply to the world market. As for importers, these are countries where the production of certain types of agricultural

products either does not fully meet domestic demand or is limited to certain agroclimatic conditions or other problems. In most countries of the world, it is effective use agricultural potential, however there is a number of countries that have opportunities do not contribute to the development of the agricultural complex of the country, please see fig.1.2.2.

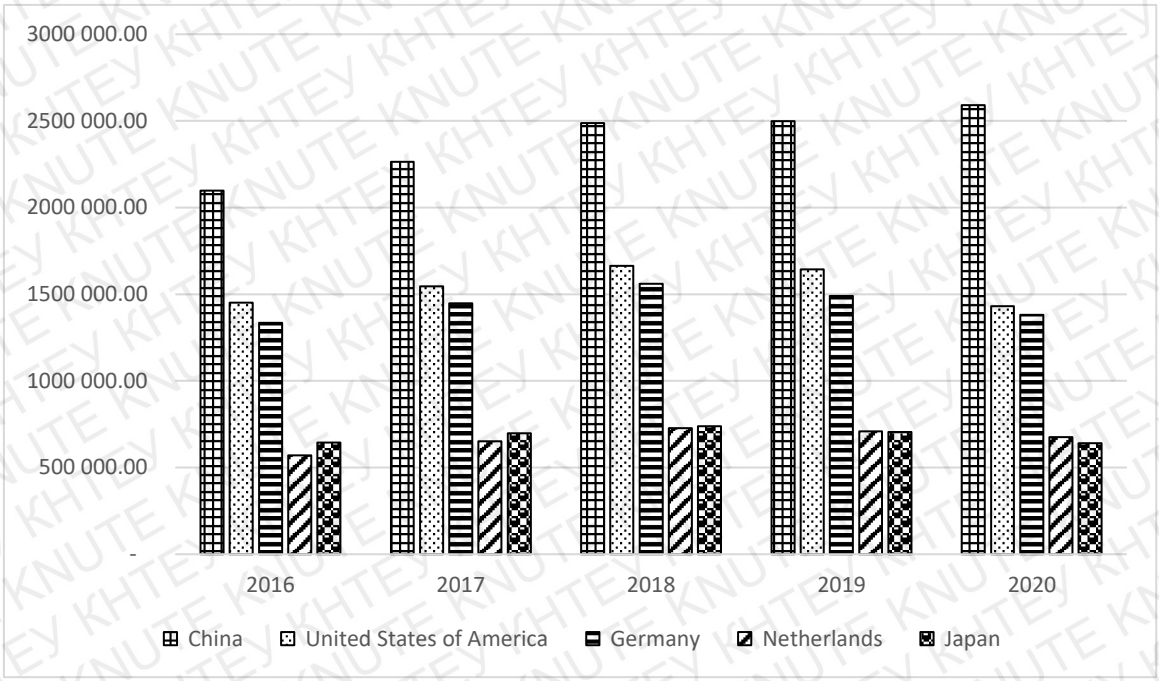

Fig.1.2.2. Analysis of TOP-5 world agricultural exporters for 2016-2020

Source: created by author based on data from World Bank

The world market of agricultural products is formed due to the sale of producers of their goods at the international level. Moreover, in this market are sold agricultural products in the form of raw materials or those that have undergone primary processing. In the case of food exchange internationally, such a market should be considered as a global food market. If on the market, except for the actual agricultural products means of material and technical support of agricultural production are realized, it is worth talking about the world agricultural market (Latifundist, 2020)

The world market for agricultural products includes metabolic processes that take place in worldwide and the object of which is all products produced by agricultural producers. In addition, the peculiarity of the studied market is that it is formed demand and supply not only for the products grown, but also for the waste

generated in the result of its production. Thus, in the context of growing international demand for organic products in the world market, respectively, increasing demand for organic fertilizers used during its production, and hence the supply increases. Thus, the world market for organic fertilizers shows an increase in its growth rate (Latifundist, 2021).

The world market of biofuels in the conditions of limited world energy resources, the object of which is those agricultural products that can produce energy in processing, also shows rapid growth every year. It is established that about 90% of world consumption of biofuels is liquid species - bioethanol and biodiesel. Despite being liquid biofuel provides only a small share of global energy needs, it is significant to a large extent affects world agriculture and agricultural markets using land resources and agricultural raw materials for its production. Usually, in this market the main agricultural products are rapeseed, corn stalks, straw, peanuts, soybeans, potatoes, sugar beets, sugar cane, etc (Statista Reports, 2019).

The world market for livestock products includes world markets for meat, milk, eggs and products beekeeping, fish, etc. Moreover, these markets consist of markets for high-demand products (pork, beef, chicken, milk, fish, etc.) and individual niche markets. product categories (honey, horse, mollusks, rabbit meat, etc.). In addition, the world market for livestock products can be divided not only by commodity structure, but also geographically. Thus, the EU countries, the United States, India, Argentina are leaders in the production and sale of livestock products. China, USA, Germany, Spain, Brazil specialize in pig farming. The main producers of poultry meat are the United States, China and Brazil, which are also its largest exporters. The leader in the production of sheep products is Australia, in addition, about half of the world's sheep population is in Turkey, Iran, Pakistan, India, Afghanistan, Sudan and other countries. The leading countries in the export of rabbit meat are China, Belgium, Poland, Hungary. Half of the world's fish catches come from countries such as Japan, Russia, China, USA, Chile, Peru. In the world market of beekeeping products are the main ones exporters of honey are China, USA, Argentina, Ukraine, Canada (FAS,2021).

The world market of crop products is represented by a significant number of different markets, the most powerful of which are the world grain market, the world market of oilseeds, the world fruit market, world vegetable market. In addition, today the world is developing quite rapidly tea and coffee market, world tropical fruit market, world tobacco market, etc (Berkshire Hathaway company, 2021).

The main types of export cereals on the international market are wheat, barley, oats, corn, rice, soybeans and peas. Currently, the main exporters of grain products are the United States, Canada, Australia, Argentina, EU countries, Ukraine, their total export proposals are more than 80% of world grain trade (Berkshire Hathaway company, 2021).

The world market of oilseeds is mainly represented by sunflower, soybean and rapeseed, which account for about 80% of exports of these crops. This market is controlled by exporting countries such as the United States, China, Argentina, Brazil, Ukraine. The main fruits in international trade are bananas, apples and oranges. With the main exporters are China, India, Brazil, USA, Italy, Spain, Mexico, France, Turkey and Iran. Among vegetables, the most popular on the world market are onions, tomatoes, peppers, carrots and cucumbers. In this market, the main products are presented way from China, India, USA, Turkey and Russia (Berkshire Hathaway company, 2021).

There are many entities in the world market of agricultural products divided into groups depending on their economic interest and the specifics of the operations, and namely the subjects of agricultural production, the subjects of sale of agricultural products, the subjects of purchase of agricultural products and the subjects of provision functioning of the world market of agricultural products.

We include agricultural producers and TNCs in the subjects of agricultural production. Given the results of the study, according to with which it was found that agricultural producers may be business entities in which the proceeds from the sale of agricultural products is more than 50% of the gross income of the enterprise, we have included in this subgroup farms, agricultural enterprises and agricultural holdings (Bizvibe, 2021) (see fig.1.2.2).

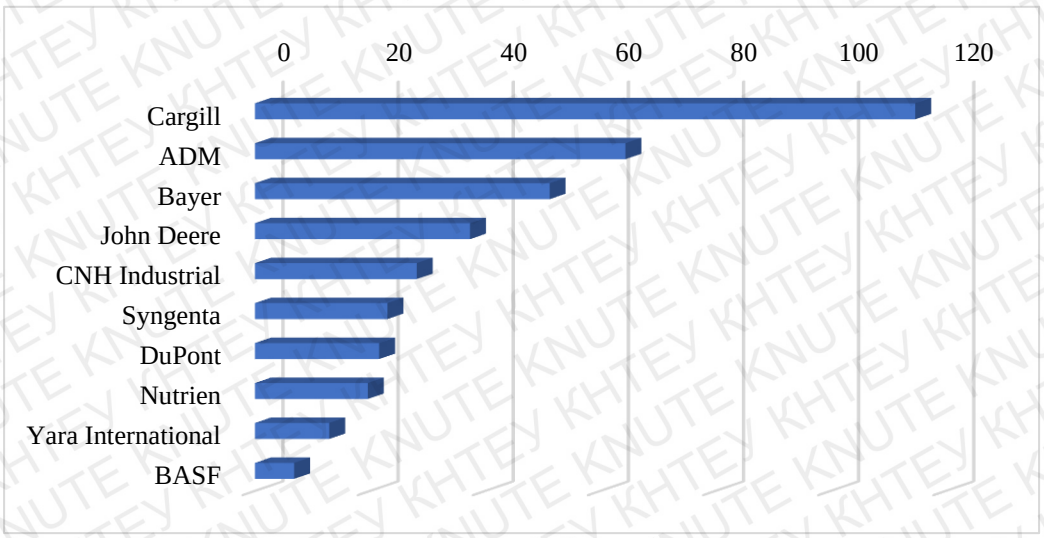

Fig. 1.2.2. Revenue analysis for TOP-10 agricultural companies for 2020

Source: created by author based on official financial reports

The subjects of sale of agricultural products on the world market are represented by agricultural traders, agricultural producers, TNCs, state commercial structures, international commodity exchanges. We believe that these entities can be divided conditionally for those who sell their own agricultural products, and for intermediaries. It is established that the peculiarity of the functioning of the world market of agricultural products is the predominance of the volume of supplies of intermediaries over the volume of supplies of agricultural producers. Thus, in the study group, only agricultural producers and TNCs can sell products of own production, others resell the goods bought from manufacturers.

We include agricultural producers, industrial enterprises, TNCs, and government agencies as the subjects of purchase of agricultural products on the world market. Worth it note the absence in our group of subjects of purchase of agricultural products of its main final consumer - the population of the world. We believe that the individual consumer buys a certain type of product, usually in the domestic market at retail from those companies who bought this product on the international market, so are not the subject of purchase of agricultural products internationally.

Conclusions to part 1.

Based on the analysis performed, we can define certain approaches to assessing international competitiveness as a mean and aim to enterprises which are engaged in international relationships. Depending on the goals, knowledge and information accessibility, each enterprise identifies its own competitive advantages and develops its own strategy based on the targets of the entity. Management is responsible for identifying strategic goals and ways of development of international trade and relationships in general.

Whilst assessing international agricultural development pattern, it was not identified any unexpected combination or players among countries and related TNC`s – the structure is relatively stable as far as agricultural market is limited in resources (land, weather conditions, etc.), so that only specialization of countries or TNC`s is taken to consideration.

Furthermore, there were identified markets of agricultural products, which make exceptional influence on the way of developing of agricultural market – these are grain, oil and fruit markets.

Specialization of countries differs a lot based on climate and geographical positions, additionally caused by level of country development, relationships with other countries, etc. Sustainable markets comprise 55% of countries with increasing GDP related to agricultural products, which has the tendency to raise from year to year.

Specific role in market development play TNCs – they are usually placed in countries with not-strict laws and cheap working force; however, they are considered to be main players on the market due to the reason that most governments do not interfere to agricultural sphere of the country and that`s why TNC have accessibility to the national resources.

To sum up, research shows us a huge competitiveness on the international market, and potential for those countries, who have enough resources base, favorable weather conditions, as well as supportive governmental policy.

PART 2

ANALYSIS OF COMPETITIVE ADVANTAGES ON THE EXAMPLE OF THE ENTERPRISE ASTARTA HOLDING N.V. ON THE WORLD AGRO-INDUSTRIAL COMPLEX

2.1. Assessment for the efficiency of activity of the enterprise of ASTARTA HOLDING N.V.

ASTARTA HOLDING N.V. sales its products to different distributors and retailers on national and international markets. Significant portion of goods are produced and exported to other countries (Belarus, Poland, Germany, Italy, Spain, Portugal, Ireland, Turkey, Georgia, Egypt (and other counties in Africa), India, China and others). Company concentrates on development of own production facilities and growth of company's brand value in the way of periodical acquisitions and investments in increasing of production capacity.

For analysis of dynamics and structure of balance sheet please, see table 2.1.1.

Table 2.1.1

Dynamics and structure of balance sheet of ASTARTA HOLDING N.V.

	Year structure in %					Change in %			
(in %)	**31/12/16**	**31/12/17**	**31/12/18**	**31/12/19**	**31/12/20**	**2017/ 2016**	**2018/ 2017**	**2019/ 2018**	**2020/ 2019**
Non-current assets	49	50	54	62	62	12	44	-3	-12
Current assets	51	50	46	38	38	7	21	-30	-12
Total assets						9	32	-15	-12
Equity	61	65	49	58	66	16	0	0	1
Non-current liabilities	13	11	13	15	22	-7	50	3	31
Current liabilities	26	24	38	27	12	1	114	-40	-62
Total equity and liabilities						9	32	-15	-12

Source: created by author based on official financial reports

The table above analyses the structure and yearly change of balance sheet figures, and the following conclusions can be derived:

1) In the structure of assets non-current are prevailing on current assets and has positive dynamics from year to year, which means strong position due to resources which belong to the entity on a permanent basis, however, may cause certain difficulties with current liabilities;
2) Current liabilities are decreasing, and non-current are increasing. This is the sign of good management of capital because in such a way the company may predict future cash outflows and direct operational activity in a correct way. Also, such change may is an indicator of good relationships with creditors and perfect credit history – banks and other institutions can rely on the payment plan and ensure that all indicators, stated in the contact, will not be breached.

Financial statements are prepared in accordance with International financial reporting standards (the "IFRS"), which means objectivity of the information can`t be breached. Furthermore, IFRS is adopted by Ukrainian law, so that ASTARTA HOLDING N.V. if fully compliant with national and international financial reporting requirements (IFRS, n.d.).

For analysis of profit and loss statement please, see table 2.1.2.

Table 2.1.2

Profit and loss statement analysis of ASTARTA HOLDING N.V.

	Change in %		
(in %)	**2018/2017**	**2019/2018**	**2020/2019**
Revenues	-13	8	0
Cost of revenues	-2	11	-6
Changes in fair value of biological assets and agricultural produce	0	-7	32
Gross profit	**-34**	**-9**	**41**
Other operating income	5	-58	-27
General and administrative expense	7	-12	3
Selling and distribution expense	32	-2	-29
Other operating expense	25	-54	59
Impairment of PPE	0	0	242
Profit from operations	**-83**	**5**	**301**
Interest expense on lease liability	0	32	3

Continuation of table 2.1.2

Other finance costs	-36	9	22
Foreign currency exchange (loss)/gain	-174	-1893	-85
Finance income	-69	-32	-5
Other income	714	-13	66
Profit before tax	**2989**	**-101**	**-131**
Income tax expense	**-166**	**-121**	**471**
Net profit	**529**	**-105**	**-139**

Source: created by author based on official financial reports

Per analysis of table above, next conclusions can be derived:

1) Revenue has not increased for 2020 financial year, however, cost of sales decreased by 6, that means that less expenses incurred to the current amount of revenue;
2) Changes in fair value for biological assets and agricultural produce has significant increase due to current market situation: prices and level of maturity for biological assets as at 31/12/2020 had increased, so that company revaluated the assets to show their fair market value;
3) Selling and distribution expenses shortage is caused mainly by change in transportation expenses;
4) Other operating expenses increase is due to penalties paid to customers for missing the deadlines of supplies because of COVID-19 restriction and low harvest for sugar beet. Additionally, the company supported anti-COVID campaign and regularly purchased
5) Impairment happened due to revaluation of premises of one of the sugar plants, which were classified as held for sale as at 31/12/2020 and sold in March 2021.

In general, financial expenses went higher due to volatility of currency rates and expenses on lease liabilities. Due to the new law imposed by the government, companies had to “persuade” lessors to stay with the company and do not sign the agreement with competitors, so additional measures were undertaken – entry allure payments, providing bags of sugar or services in exchange for loyalty.

For additional analysis of company`s performance, we have assessed main

groups of financial indicators – liquidity, turnover, capital structure. Please, refer below. Formulas used for calculation financial indicators are provided in Appendix A and extract of financial statements is provided in Appendix B.

For analysis of liquidity ratios for the enterprise please refer to table 2.1.3.

Table 2.1.3

Analysis of liquidity ratios for ASTARTA HOLDING N.V.

Indicator/ratio	Reference values	31/12/2016	31/12/2017	31/12/2018	31/12/2019	31/12/2020
Absolute liquidity	0.2-1.0	0.08	0.11	0.05	0.06	0.38
Current liquidity	1.0-3.0	2.00	2.11	1.19	1.40	3.21
Intermediate liquidity	0.7-0.8	0.40	0.43	0.31	0.38	1.07

Source: created by author based on official financial reports

As per table above, we can identify the tendency of liquidity ratios to grow, which means company`s ability to pay for current debts without extra activities, such as selling inventories or biological assets.

For absolute liquidity ratio, in 2016-2019 company`s assessment was below reference values, which meant certain actions to be undertaken by the management of the company.

For current liquidity ratio company has been in the frames of reference values for 2016-2019, however, in 2020 this ratio was above average frames, which means that company has extra capabilities for capital management.

For intermediate liquidity ratio the company was below reference values for 2016-2019, however, in 2020 exceeded them. This is caused by price fluctuations for inventory and biological assets, and increased amount of cash and cash equivalents held in banks.

For analysis of capital ratios please refer to 2.1.4.

Table 2.1.4

Analysis of capital ratios for ASTARTA HOLDING N.V.

Indicator/ratio	Reference dynamic	2016	2017	2018	2019	2020
Own current assets	>0.3-0.4	0.25	0.3	-0.11	-0.12	0.1

Continuation of table 2.1.4

Solvency	>0.5	0.61	0.65	0.49	0.58	0.66
Debt	<0.5	0.39	0.35	0.51	0.42	0.34
Debt coverage	>1-1.5	1.6	1.87	0.97	1.37	1.93
Current debt	Decrease	0.66	0.68	0.75	0.64	0.34
Equity maneuvrability	>0	0.21	0.23	-0.1	-0.08	0.05

Source: created by author based on official financial reports

Own current assets ratio is not sufficient according to reference values, that means absence of current assets to satisfy the needs of shareholders and stockholders in full. However, the tendency for the last 3 years shows positive changes, which may lead to proficiency in future.

Solvency ratio shows positive dynamics for all years, which are taken into consideration, and has never fallen below lowest reference value. This means equity of the entity is becoming greater in comparison to all total liabilities of the entity, which is explained by repayment of debts and subsequent decrease of liabilities.

Debt ratio, on the contrary to the solvency ratio, shows us a part of debt liabilities in the liabilities structure of the company. And, as in paragraph, stated above, this ratio is not exceeding maximum reference value for the investigated period. Debt coverage ratio is having a positive dynamic for the last 3 years due to increase in equity (net profit at the end of the period is classified to undistributed profit/uncovered loss section of the equity), that means higher ability of the entity to cover their liabilities with own capital.

Current debt ratio has positive decrease dynamics which means the level of short-term liabilities to become less burdening in the structure of borrowed capital.

Equity maneuverability ratio has positive values for 2020, 2017, 2016 and negative for 2018 and 2019, which means that company has sufficient current assets to pay for its debts before shareholders and stockholders.

For analysis of turnover ratios please refer to 2.1.5.

Table 2.1.5

Analysis of turnover ratios

Indicator/ratio	Reference dynamic	2017	2018	2019	2020
Asset turnover	Increase	1.59	1.21	1.41	1.81

Continuation of table 2.1.5

Inventory turnover, times	Increase	1.54	1.38	1.72	2.17
Inventory turnover, days	Decrease	223	261	161	126
Accounts receivable turnover	Increase	10.6	6.46	6.41	8.73
Accounts payable turnover	Decrease	0.04	0.02	0.01	0.01
Asset productivity	Increase	0.80	0.58	0.59	0.68
Accounts receivable turnover, days	Decrease	44	85	52	44
Accounts payable turnover, days	Decrease	8	8	5	5

Source: created by author based on official financial reports

Asset turnover ratio show us the efficiency of activity of the enterprise in return to assets employed, dynamics for which shows us consistent increase year-to-year.

Inventory turnover rate shows us circular times of inventories and biological assets for the 1 financial year (operational cycle). This ratio tends to be increasing, which means higher turnover for one of the most fast-moving assets, confirms its changeability and low rates of obsolete or slow-moving assets.

Average inventory turnover is usually measured with days, so how much days need to pass so that the whole inventory will be replaced. This ratio is constantly decreasing, which is positive for the entity.

For analysis of profitability ratios please refer to table 2.1.6.

Table 2.1.6

Analysis of profitability ratios

Indicator	Reference dynamic	2017	2018	2019	2020
Return on assets	Increase	10	-3	0	1
Return on non-current assets	Increase	21	-6	0	2
Return on current assets	Increase	20	-7	0	3
Return on equity	Increase	16	-6	0	2

Continuation of table 2.1.6.

Return on borrowed capital	Increase	28	-8	0	3

Source: created by author based on official financial reports

Profitability ratios show us net profit return on assets and liabilities employed in production. For the 2020-2018 years ratio dynamics is positive, whilst in 2018-2017 it has very poor dynamics – that is caused by currency risks, taxes, interest payment and other current expenses incurred in the period, as well as the transition to International financial reporting standards, which require retrospective review of the financial statement and change in figures.

2.2. Research for the competitive advantages of the enterprise ASTARTA HOLDING N.V. on the world agro-industrial complex

ASTARTA HOLDING N.V. operates in a highly competitive environment in several sub-industries: Agriculture, Sugar, Soybean processing, dairy farming and others financially inconsequential.

As far as Ukraine is one of the most competitive agricultural countries in the world, many rivals are placed in the country of origin. All agricultural companies are not operating in just one segment, usually it comprises out of 2-4 different agricultural activities (ASTARTA HOLDING N.V., 2020).

The agricultural sector of Ukraine is represented by numerous enterprises with both domestic and foreign capital. It is much easier for companies with foreign capital to build international relations, as there is always a parent company with significant authority and influence in the world, which will help in any difficulties. That is why the competitiveness of domestic enterprises in the world market is carefully assessed by key management personnel of enterprises to maximize profits, strengthen market influence and find ways for optimizing capital structure.

When evaluating agricultural enterprises, important characteristics are: the area of the land bank, the cost of investment into future crops and the company's profit. The most variable is the cost of investment in future crops, as far as it is based mainly on models for estimating biological assets, which consider the yield of previous years, soil composition, weather conditions in the region, etc. These characteristics are developed individually by each company to efficient management.

Agriculture: The main competitors in agriculture are such large companies as KERNEL (527 ha thousand or 9,37), Ukrlandfarming (510 ha thousand or 9,07), Agroprosperis (AP Group) (390 ha thousand or 6,93) and Myronivskyi Hliboprodukt (MHP) (370 ha thousand or 6,58) - which hold the top four positions in the market. ASTARTA HOLDING N.V. places 5-th position and controlling land bank of 250 ha thousand (4,45) (Agroportal, 2020).

The aggregate land bank which is under control of agricultural holdings is

5.62 ha mln and under control of TOP 5 of them - 2,047 ha mln (36,42).

Sugar: ASTARTA HOLDING N.V. is the largest producer of sugar on the market of Ukraine. Its share is 21 (325 ths ton). The largest competitors are Radekhiv-Tsukor (market share is 20) and Ukrprominvest-Agro (market share is 15). There are also market players with small share on the market such as Svitanok (7), Tvest (4) etc (Latifundist, 2020).

Average price of sugar in Ukraine in 2020 has not changed significantly and was $341.38 (excl VAT) per ton. In 2020 FY slight increase is expected considering decreasing of sugar production approximately by 12.

Soybean processing: Soybean products market is also high-competitive with several large companies such as Myronivskyi Hliboprodukt (MHP) (market share - 20), ASTARTA HOLDING N.V. (18) ("Globinsky processing factory"), Pologivskiy MEZ (11) and Viktor and K (10). There are also market players with smaller share on the market such as Promtehagrotorg (6), Thegra Ukraine (4) etc (APK-Inform, 2021).

Agriculture, the same as sugar production and soybean processing highly depends on seasonality. The entire crop of a variety of agriculture is harvested from July to October and further processed/sold depending on segment of activity of the Group.

ASTARTA HOLDING N.V. continues to use in production up-to date technologies, invest in quality and innovative growth platforms to provide products of high quality to its customers and remain competitive on the Ukrainian and international market (Agroportal, 2020).

General situation on Ukrainian market is favorable. The demand on the sugar and agricultural products is stable.

The data of the State Customs Service of Ukraine show that the key markets in the period are as follows:

- Turkey: 10.42 thou. t, USD 3.85 mln, 19.1 of the total supply,
- Libya: 7.76 thou. t, USD 2.87 mln, 14.23,
- Lebanon: 6.95 thou. t, USD 2.57 mln, 12.73,

- other countries: 29.43 thou. t, USD 10.88 mln, 53.94

Also, Ukraine continued to limit its political and economic ties with Russia, given annexation of Crimea, an autonomous republic of Ukraine, and a frozen armed conflict with separatists in certain parts of Luhanska and Donetska regions. Despite such events, the Ukrainian economy demonstrated further refocusing on the European Union ("EU") market realizing all potentials of established Deep and Comprehensive Free Trade Area with EU, in such a way effectively reacting to mutual trading restrictions imposed between Ukraine and Russia.

In our view, it is considerable to perform SWOT-analysis to group characteristics of the entity, identify threats and propose relevant solutions, based on latest available information.

Table 2.2.1

SWOT-analysis of ASTARTA HOLDING N.V.

Strengths (S)	**Opportunities (O)**
• Presence on Polish Stock Exchange; • Operates in various segments of agriculture; • Has diversified capital and asset structure; • Has developed chain of export to Europe, Asia.	• Emerging with small enterprises, agricultural companies; • Sugar segment development; • Development of new products based on market demand.
Weaknesses (W)	**Threats (T)**
• Relatively old infrastructure, technics, which need to be repaired quite often; • Land bank available only in several regions of Ukraine, but enough close to each other, which minimizes expenses on harvesting; • Limitage to usage of fertilizers due and accent to naturality of the product.	• Changes in legislation (Law about Land, changes in taxation, etc); • Technological development of the rivals; • Change in approaches to business due to new management; • Control of new business operations; • Fraud.

Source: created by author on official data of the enterprise

As it is stated above, each player of the agricultural market has their own set

of goals and thus it may be not relevant to compare them on all the aspects. However, to promote national market and especially the company name, business need to consider new ways of development and lowering as mush risks as possible.

The main weaknesses maybe rebutted for a short period of time with comparable low resources – all plants can technically be renovated in 1 year, all technics repaired or changed in even shorter period, technology approach for using only natural fertilizers also can be changed, however, brand recognition and respect may suffer, so it depends only on management decision.

In our opinion, it is necessary to pay much attention to threats and the consequences they may cause. First, changes in political environment and legislation may lead to significant problems to operational activity of the enterprise – new edition of land code of Ukraine imposed by government in 2020 brings a lot of difficulties to agriculture. Agricultural land is usually rented from individuals, but each of them has small pieces inside one field. So, if a competitor offers higher price and additional contributions to the lender – the whole field will be divided between different companies and it will cause additional expenses and efforts to operate on it (Law of Ukraine "On land lease", Law of Ukraine “On payment for land”, Amendments to Certain Legislative Acts of Ukraine Concerning the Circulation of Agricultural Lands).

Technological development is also one of the key risks, which are to be addressed. As far as agricultural industry easily absorbs new technologies, everyone should pay much attention to those used by competitors in order not to miss harvest due to weather conditions.

Additionally, with current management company is successful and in insanely growing from year to year, however any changes to strategies or managing personnel should be carefully monitored by shareholders. Any change of key managerial staff may cause stocks fall or other non-financial changes, such as staff outflow, etc.

Regarding growing new business activity, not previously used in region/country – this may need additional level of control over business, as far as the technology may be stolen, uneven personnel appointed as a head of the

department, which may cause additional expenses and occur losses.

At last, fraud is also a great threat for the company – the main resource is inventory and biological assets, which can be stolen anytime by anyone. Financial resources, fraudulent reporting, manipulations with financial data may lead to strong uncertainties by government, stock exchange, counterparties and other interested people, and as a result – disrespect of brand and production, legal cases against company and penalties from the government.

So, to prevent all risks, maximize strength, increase and bring to life opportunities the company needs to pay attention to lots of indicators, financial and non-financial, to minimize or predict negative outcome, later – to solve it as fast, as possible.

Additionally, we have performed PEST analysis to assess influence of factors, which determine sphere of company`s operations. Assessment table with relevant expert`s marks are placed in Appendix C.

Table 2.2.2

Summary from PEST-analysis for ASTARTA HOLDING N.V.

Political factors		**Economic factors**	
Factor	*Significance*	*Factor*	*Significance*
Unstable political situation in the country;	0.13	High inflation rate;	0.24
Military conflict;	0.17	Unstable national currency exchange rate	0.16
Deterioration of trade relations with Russia;	0.04	Economic decline caused by the Covid-19 pandemic;	0.26
Laws and regulations imposed by government	0.18	Decline in harvest amounts due to weather conditions	0.25
		Lack of own funds for development;	0.06
Social and cultural factors		**Technological factors**	
Factor	*Significance*	*Factor*	*Significance*
Low level of staff motivation;	0.23	Wear and tear and technological obsolescence of fixed assets;	0.11
Intellectual migration of personnel;	0.13	Lack of own financial resources to acquire and implement modern technologies;	0.21
Insufficient development of social infrastructure;	0.06	Lack of state financial support for technological development.	0.14

Source: created by author based on official data of the enterprise

PEST-analysis is inevitable to be performed by each entity on a regular basis to proactively respond to market demand, to comply with laws and regulations and

stay responsible with customers and staff. Considering main market trends, the company may quickly make changes to existing strategy to stay competitive and to optimize processes so that they satisfy current needs.

Conclusions to part 2.

In part 2 of this work, we have assessed the efficiency of activity for ASTARTA HOLDING N.V. for the last 5 years. The results of such analysis show us that the entity pays much attention to managing capital and asset structure based on the ongoing activity of the market. Most financial indicators are in line with the reference values, set by standards, that means current situation to be positive by many aspects.

Furthermore, we have analyzed potential rivals from Ukraine in agricultural sphere as far as Ukraine is a significant player on the world market of agricultural products. We have identified strong and weak sides of our enterprise, assessed the way of their demonstration and possible outcomes so that they can be effectively managed.

Overall analysis shows us that the company is very competitive on the international arena due to diversification of operating segments, effective management of capital and growing strong position with respective name. Listing of Warsaw Stock Exchange made the name of ASTARTA HOLDING N.V. known all over the Europe, which is supported by the high-quality production. Such measures help to maintain positive brand image, attract new customers and offer/require special conditions for supply/purchase of goods and services.

Furthermore, PEST analysis is a powerful tool for identifying main influential factors which may cause interruption of production activity, setting up the trends to market development by changes to internal standards and environment. ASTARTA HOLDING N.V. performs such analysis on a regular basis (usually at least each quarter), which is reflected in their reports for activity and checks compliance with imposed requirements, so that all activity is lawful and not restricted. Big international companies usually identify any trends in their day-to-day activity and as the result they immediately respond to current market requirements.

PART 3

WAYS FOR IMPROVEMENT THE COMPETITIVE ADVANTAGES OF THE ENTERPRISE ASTARTA HOLDING N.V. ON THE ON THE WORLD AGRO-INDUSTRIAL COMPLEX

3.1. Development of a complex of measures to increase of competitive advantages of ASTARTA HOLDING N.V. on the world agro-industrial complex

Starting point of improvement of external competitive advantages is in internal changes to the approaches of current management process. ASTARTA HOLDING N.V.`s relations with external customers are well-developed – Cofco Resources, Olam, Glencore are main customers of the entity. Contract signing process starts far before actual beginning of agricultural season (plans for future harvest are presented to global customers in 9-12 month before beginning of the season, and global exporters plan their activity accordingly). Price range stated in such contracts is usually roughly fixed, so the agricultural entities need to plan their resources attentively and to follow other conditions.

For the previous 5 years Ukraine farmers encountered a problem of drought and cold summer. Drought is caused by weather condition, where rains usually happen very rare. Much water resources should be spent to compensate absence of rain. Cold summer is also a problem, but modern technologies have invented the way to solve it. All plants have their time of florescence, so that bees, insects and wind move pollen and pollinate plants for the future life stage. However, this all is possible only if the weather conditions are warm enough for the plant to enter this cycle. New fertilizers help plans to start florescence process, so that the risk of bad harvest is minimized (Law of Ukraine "On seeds and planting material"; Law of Ukraine "On plant protection").

Unfortunately, all Ukrainian agrifarmers use massive technics to water, spread fertilizers, usually combine-harvesters of different purpose, which mechanically destroy the harvest during the lifecycle and, as a result, decrease total amount of harvest. The new technology, which is spreading nowadays is drones for

industrial activity. These technological robots are now conquering the market of developed countries for next reasons:

- They help to use resources effectively (by counting average consumption over the selected land area, etc.)
- They minimize harm to the plants and harvest – as far as they spread liquid from the high, nothing is destroyed and each plant is involved in the process.
- They minimize human factor harm in the process. The involvement of personnel is needed to control, but robotic technologies are independent and can be set according to the farmers needs.

However, due to high price of the technology, it is rarely used in Ukrainian agro-industrial complex. This technology will be widely used in 4-6 years, when the market will be saturated with analogues and the price will decrease for similar products.

Another problem is related to weather conditions of Ukraine – that is germination of seeds. No active technology is used for the counting of actual percentage of seeds which have started growth after winter period, change of plant field and soil characteristics. In Ukraine it is measured using “on knees” method, when the farmer on place manually calculates such percentage and prepares actual figures to be used in assessment for the future harvest and, subsequently, income. Such analysis is not accurate and causes many troubles to managers, who assess effectiveness of usage of certain technologies for biological assets.

Ukrainian farmers do not seem to actively apply new technologies to operational process, so that continuing operations are not enough sufficient.

Additionally, per analysis of market trends and requirements, it was identified, that in Ukraine there are only several companies, which provide services for deep processing of grains. In Ukraine, sphere of value adding processes to agricultural products is not developed – almost 90 of harvest is sold without processing in raw form. This does not add any value to the produce; however, it is possible to change approach and enter new markets and hugely increase profitability (Ukrinform, 2021).

In the current geopolitical conditions, Ukraine needs control over its food security and build factories for deep processing of grain. Only this will allow to become a competitive supplier of raw materials and increase business margins, provide jobs for people and protect the country from unemployment and economic chaos (Elevatorist, 2020).

Dynamics of grain harvest in 2016-2020, in centners is provided in fig.3.1.1.

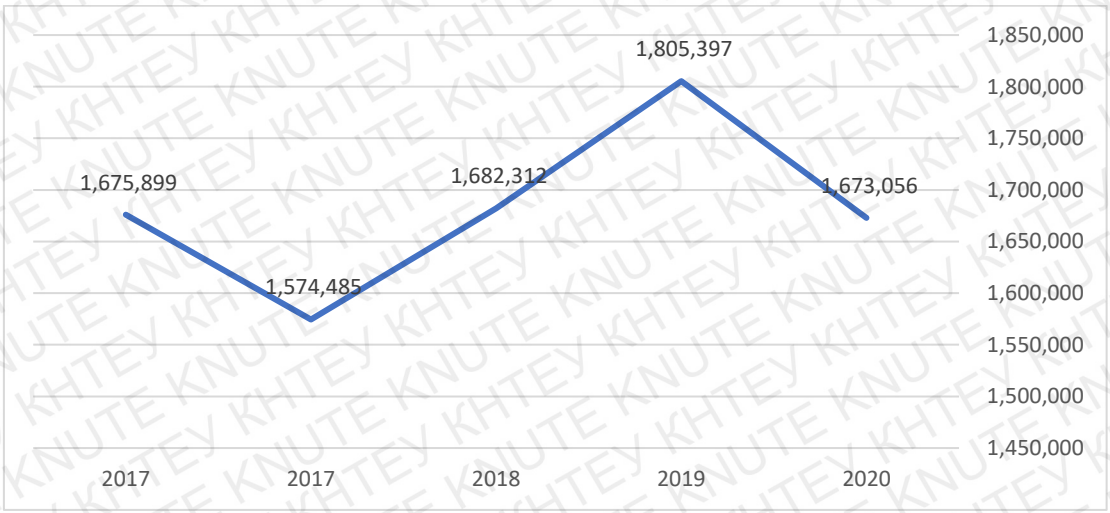

Fig. 3.1.1. Dynamics of grain harvest in 2016-2020, in centners

Source: created by author based on Ukrstat

Much harvest is used for internal consumption, there is also a certain amount left, which is sold at a low value due to market saturation. These factors provide reasonable preconditions for developing deep processing plant for grains.

In Ukraine only 7 plants can deeply process grains, and all of them are using corn as the main grain. In USA, 36 of all grain harvests is processed and used in further production.

There is a technology for deep processing of grain, where certain products are main outputs, such as:

1) Starch;
2) Modified starches;
3) Glucose-fructose syrups, syrups;
4) Amino acids - one of the most efficient products in this group is lysine, an essential amino acid that is part of almost any protein, which promotes the

absorption of phosphorus, calcium and iron by the body, increases the hemoglobin content in the blood, and improves digestion processes. The main use of lysine is as an additive to animal feed;

5) Organic acids;
6) Liquid biofuels - standard representatives of this group are bioethanol and biodiesel. Ukraine has an excellent raw material base to produce these products - corn, wheat, rapeseed;
7) Yeast and yeast extracts (LTV Ukraine, 2020)

The following processing stages are generally classified:

1) **The first stage**, preparatory, includes the following operations: transportation; cleaning grain from dirt and various types of impurities; hydrothermal treatment of grain (moistening, steaming, drying, cooling); fractionation and sorting. These operations are carried out in large volumes at grain storages and transshipment elevators, as well as at processing plants and are the basis for further technological conversions.
2) **The second stage** includes various levels of complexity of crushing and grinding operations, in which processing is carried out by physical impact on grain and grain mass, without disturbing the chemical composition of the feedstock. That is, in the process of processing, the output product retains the basic characteristics inherent in the grain from which it is obtained. The structure and shape of cells, properties of proteins, sizes, shape and properties of starch grains, etc. remain unchanged. Processing products at this stage are cereals, flour, snacks. This also includes the production of compound feed.
3) **The third stage** of processing consists in extracting its chemical ingredients from the grain, which are sold as an independent product (starch, for example) or are further processed into products with other quality characteristics, which is the most expedient and effective solution (MCL, 2021).

It should be noted that at this stage, gluten, fats, B vitamins, various minerals

in the form of iron, magnesium, and cadmium compounds can also be obtained from grain as secondary products. Some of the extracted components can be used immediately as a stand-alone product. For example, gluten and starch.

Also, there are certain infrastructure requirements for opening such production, listed as follows:

- The area of the required land plot depends on the estimated annual volume of grain processing and products that will be obtained in the production process and is determined by the project.
- The size of the sanitary zone of the future enterprise is determined by the project, depending on the manufactured products.
- Availability of an access road with hard surface and good quality with access to the road not lower than the regional level.
- The presence of a railway line with access to the railway station. With a minimum production volume (100 thousand tons of raw materials), the daily traffic is 7-9 wagons and more.
- High-pressure gas line.
- To ensure the minimum production volume (100 thousand tons of grain per year) for deep processing of grain, it is necessary to connect to power grids with a capacity of 8 MW or more.
- Production also requires water, the required volume of which is determined by the project. A territory with the possibility of placing deep wells with an aquifer is needed (Agroportal, 2020).

The following requirements are stated for the current level of harvest, which is usually held by the entity on a permanent basis. Analyzing the requirements and available infrastructure for opening production facilities, ASTARTA HOLDING N.V. has full capacity – land and sugar plants are available in Poltava oblast, where also high-pressure gas line is situated. So, technically, only technology and specialized line is required for starting of the project (Latifundist, 2019).

Deep processing of grains can help to satisfy internal needs and decrease imports from abroad of similar products, however, an accent can be put to exports

of such products to another countries. Demand for processed grain products have been analyzed and we have identified certain trends:

- Consumption of such products is growing in the East region (China, Japan, Korea), where is insufficient harvest even to satisfy internal needs.
- Consumption in Europe, which stand for optimal resource usage without minimum waste and resource input, which are additionally produced in a natural way.

Opening of such facility by ASTARTA HOLDING N.V. will help to greatly increase international presence and enter new markets, as far as ASTARTA HOLDING N.V. nowadays is TOP-1 producer and exporter of sugar in Ukraine.

Summing up, the level of openness to the market and wish of company to increase competitive advantages is based on company`s ability (availability of assets and financing) to implement new technologies, legal requirements from the government and market needs.

We assessed strengths and capabilities of the enterprise to improve competitiveness on the world agro-industrial complex for the ASTARTA HOLDING N.V., and propose next measures to be improved during nearest operational cycles (see table 3.1.1):

Table 3.1.1

Proposed measures for improvement of competitive advantages of ASTARTA HOLDING N.V.

Strength/area for development	Ways for improving
- significant time of relations with customers and contract signing process; - in time fulfilling of obligations; - own resource base for fulfilment of obligations.	- revision of old contracting schemes with major customers and discussing more loyal approaches and conditions for fulfilment of obligations; - developing own resource base with newest technologies to prevent buying inventories from 3rd parties, which may be economically not efficient;

Continuation of table 3.1.1

- implementing new technologies for assessment of the cultures and harvest during lifecycle;	- minimizing of human factor by using standard European and American practices for assessing of harvest during lifecycle; - purchasing of new technological equipment (drones, software for them) to better assess conditions of soil and plants, and do less harm using standard technics (tractors, etc).
-opening new complex plant on deep processing of grains.	- assess all available sugar plants for changing of the product line and relevant requirements or consider purchasing of new premises with all infrastructure -perform market research to identify potential customers before starting of production process -develop strategy and business plan for implementing such technology and respective changes in internal structure.

Assessment of the efficiency of implementing of such measures will be done in the next part of this work.

3.2. Forecast effectiveness assessment of the proposed measures for ASTARTA HOLDING N.V. on the world agro-industrial complex

In previous part of this work we have determined 3 main measures to be implemented during operational activity of ASTARTA HOLDING N.V. in the nearest future.

Forecast assessment can be done preliminary with some point of accuracy, using non-complex approaches and approximate figures.

According to the first point, stated above, forecast assessment will lie in non-financial indicators, as far as contact signing process for agricultural commodities is toughly related to prices. Though, per analysis of significant contracts, there was identified several issues, that can be raised and used for the company`s benefit, such as:

1) Terms of delivery. Having previous experience of cooperation with customers, ASTARTA HOLDING N.V. may demand longer terms of delivery in force-majeure and unpredicted circumstances without paying penalties for breach of contract.
2) Using less risky INCOTERMS for delivery of goods. Sales to national customers are usually made on EXW conditions, however, international sales are made using DDP, DAP, CIF, CFR conditions. They include insurance payments and responsibility for delivery of goods, require more complex approach to revenue recognition and distribution of responsibilities. Though, depending on market conditions, standard working practice and customer`s requirements, some conditions may be changed.

Contracts with significant customers are signed far before the harvesting process begins. It is made to ensure future assets inflow in exchange for certain consideration paid. Amounts contracted are based on budget figures adjusted for investments into future crops with possible weather changes and other force-majeures. Usually, prices are fixed at the date, when the contract is signed,

sometimes with possible influence of national exchange rate, but such amounts are not usually incremental. Main delivery terms are also stated and as usual, Ukrainian party of the agreement is liable for delivery of goods and all insurance costs incurred.

Unexpected situations happened in 2020 due to bad weather conditions all over the world – harvest was greatly impacted and low amount was received. Prices for raw materials and processed products got higher, however national companies could not increase price due to contract terms. It caused a great problem on the market because Ukrainian companies are trying to build strong relationships with significant customers and in need for continuing of future cooperation were obliged to report losses.

Adding up to the point of view, we can conclude that national producers of agricultural goods and processed products are dependent from main players on international agricultural market. Ukrainian agricultural companies are not so influential on the world market; however, they are moving is correct direction – they build strong client relationship to become reputable and recognizable separately. By fulfilling obligations in a proper way, they can earn status of reliable supplier and thus attract more customers (even directly).

Investing into new technologies and appliances for harvest assessment, we consider appropriate to change existing approach because much human factor is involved (Ordzhi, 2019).

Table 3.2.1

Top-10 companies by land bank in Ukraine for 2020

#	Company name	Land bank for 2020, ths ha
1	Kernel	600
2	UkrLandFarming	470
3	NCH (Agroprosperis)	410
4	MHP	370

Continuation of table 3.2.1

5	ASTARTA HOLDING N.V.	210
6	Continental Farmers Group	160
7	HarvEast	147
8	Epicentr-Agro	127.5
9	IMK	123.9
10	UkrPromInvest-Agro	116.5

Source: created by author based on Landlord

To maximize the efficiency and processing of the crop with new technological tools, it will be advisable for the company to use drones as such tools, rather than traditional methods (tractors and other seeding machines) (Baran, 2018), (Kernasiuk, 2018).

We compared 2 of these methods to identify pros and cons and whether the investment in such tools is recommended.

Table 3.2.2

Comparison of main characteristics for usage of different means of technics

Characteristics	Traditional means (tractors)	Newest means (drones)
Price	>2mUAH	300-500 kUAH
Maximum processing area (per 1 day)	1 tractor – 30 ha	1 drone - 100 ha
Needed inputs	Fuel, supplies for transport, driver	Electricity and 1 changeable accumulator

Source: created by author based on market research

Post-sowing crop processing in companies takes approximately 3-4 weeks, which includes spraying or applying dry fertilizers. To calculate needed number of drones for initial setting up, we should consider the location of land and assume that time to transport drones should also be considered.

Table 3.2.3

Forecast investments into new technology

Total land	210 000 ha
Total time	4 weeks
Area to be processed in 1 day	7000-8000 ha

Continuation of table 3.2.3

Efficiency of drone work	100 ha/day
# of drones needed	70 drones
Investment price (approximate)	28 mUAH

Source: created by author based on average drone characteristics

The figures shown in the table above are approximate and starting points for the successful effective implementation of the technology.

In comparing to usual transport means, used for such works, efficiency is obvious due to next reasons:

1) Less damage to crops;

2) proportional spraying and no missing zones;

3) saving on fertilizers;

4) minimization of human influence on the process since the drones are programmed and work automatically (Kantsedal, 2018).

So, in our view, implementation of drones will help directly in the process of working with crops and monitoring of their condition. It will also help to take immediate actions when force-majeure situations take place. Better crop management will lead to in-time fulfilling of contract duties with minimum losses and not incurring additional costs (purchasing of crops inside Ukraine to fulfil obligations before international customers and to keep up reputation of ASTARTA HOLDING N.V. as a reliable counterparty) (Sydoruk, 2019), (Cherevko, 2019), (Zilberman, 2018).

The last one proposed measure to undertake was starting the deep processing of grains. This is a major investment which is to be considered by the top management of the company. Preliminary actions to be undertaken – market analysis and contacting to potential customers to build strong client relationships.

Investments in such a plant can help start a business with a minimum turnover. Further development of the direction in the company will depend on the demand for the products and the possibility of increasing the scale of production under the existing conditions. Generally, the amount of investment can`t be reliably measured due to next issues:

1) Available infrastructure and need to its development. Investments may be needed in a powerful electric line, a factory building and water supply, a railroad, etc.
2) Predetermined and willing output amount.

The main aspect for the investment cost is the amount of output. From different sources, such investment in Ukraine will cost approximately 25-30 million of USD with expected repayment period for 3-4 years. Such investment is huge for this industry in Ukraine, thus should be accurately inspected and evaluated by management of the company.

We calculated the forecast of financial statements for the medium (3-5 years) term (2021 - 2023) using the method of exponential smoothing (Excel FORECAST.ETS function).

As we can see from the results obtained in Appendix D, during the 2021-2023 period the positive dynamics of net income will be continued. The projected figure in 2023 will be 13.1 billion hryvnias, while in 2020 the net loss was 12.9 billion hryvnias.

Per analysis of balance figures, there is mentioned increase in Fixed assets by 1 billion UAH for 2021 due to purchasing of all equipment needed for new development actions.

Also, based on forecasted statements, indicators of liquidity, solvency, business activity and profitability were analyzed (see Appendix E). Due to the obvious coverage of liabilities and income increase, there is an improvement in liquidity, capital and profitability ratios for 2021 – 2023, compared to 2020.

Negative results for own current assets ratio and equity maneuvrability states that fact that capital (equity) of the entity need to be better manager in order to proactively respond to enterprise`s demands.

Conclusions to part 3.

ASTARTA HOLDING N.V. as one of the main agricultural operators in Ukraine and significant player on international and world market has huge potential of becoming more competitive in comparison to companies from abroad with invested capital (i.e., Cargill, etc.). Being one of the nationally grown companies with no investment from abroad, having passed the rivals and becoming strong international players, it still has areas for development.

In our view, investing into new technologies with low development on the territory of Ukraine will help to develop new competitive advantages on world market, increase recognizability and promote new technology to the existing players. Furthermore, it will increase internal and external competitiveness with one key point – senior market players will benefit from such technology implementation faster.

Developing a sustainable production and resource management systems will definitely benefit the company due to usage of newest, efficient technologies. The analysis of costs for the implementation of the proposed measures showed that the use of drones are economically feasible promising solutions for large agricultural entities. At the same time, using drones to monitor the region's land will lead to increase farm incomes in the future.

Abovementioned proposals for increasing competitiveness are based on current market demand and level of technological development. Europe and USA have higher level of development thus are standard-setting practices for other countries. In Ukraine such technologies are implemented on a very basic/ not complicated to be competitive on the international or global market, thus, such niche may be filled in by ASTARTA HOLDING N.V. with enough financial resources.

CONCLUSIONS AND RECOMMENDATIONS

The presence in the country of processing industries with the highest possible level of processing of raw materials is a fundamental factor in the stability of the economy and a guarantee of a high standard of living of the population. The creation of such industries should become an upward trend for Ukraine for the next decade. Right now, during the economic crisis burdened by a viral pandemic, there is a good opportunity to develop strategic business development plans. For Ukraine, with its raw material potential in agriculture, the organization of the production of deep processing of grain crops looks most attractive.

ASTARTA HOLDING N.V. is Top-1 Ukrainian producer of sugar and is included in TOP-5 agricultural producers of Ukraine. On the current level of development of this sphere in Ukraine, it holds main positions in many aspects – from technology implementation to approach to management.

Per assessment of financial position, dynamics and structure of assets and liabilities, common financial indicators, it was identified that ASTARTA HOLDING N.V. has positive improvement trends. Most of financial indicators have positive dynamics for the last 3 years, which means that company pays attention to capital structure and capital management. Furthermore, the relationships with customers, suppliers and creditors are built on a high level: company managed to restructure credit lines to distribute them evenly between long-term and short-term liabilities and plan future cash inflows and outflows. Additionally, there is a trend of increase in non-current assets and decrease in current liabilities, which means that the company owns more assets of a high value, which can be used over years.

ASTARTA HOLDING N.V. is a good example for many national agricultural companies due to the fact, that it earned respect among international agricultural players as a company with totally Ukrainian capital. The enterprise performed IPO on Warsaw stock exchange in 2006 and attracted additional working capital, increasing value of its shares and assets.

Agricultural sector in Ukraine, indeed, is the main driver of GDP for many recent years. National agricultural producers are competitive on international market

mainly due to soil features and proper fertilizers used during sowing process. However, many of such companies are very tough to implement new technologies and use modernized technics to monitor harvest during lifecycle.

Changing of approach to harvest management may lead to increasing competitive positions on national and international markets, improve competitiveness of national market as a whole and increase internal standards of crop management.

It is critical for ASTARTA HOLDING N.V. nowadays to change approach to using of new technological developments, which may incrementally change the level of output, decrease human involvement and impact on harvest.

Ukraine needs to develop its own deep processing and produce products with high added value. The introduction of such technologies would allow Ukrainian food producers to refuse to import many components. For example, 65 syrup, which is used to make soda and soft beer, is made from starch A. It is a product of deep processing of wheat or corn. Also, in the process of deep processing of these crops, starch B is obtained. In order not to mix it with starch A and not to worsen the quality indicators of the syrup, at the first stage it can be used in animal feed.

Being one of the main players on the market with diversified biological assets structure and inventories range, it may become extremely profitable and standard-setting direction for developing of Ukrainian market. Additionally, it could also change the perception of Ukraine as a raw material appendage for the other markets.

In the current geopolitical conditions, Ukraine needs to take care of its food security and build factories for deep processing of grain. Only this will allow us to get rid of the status of a raw materials appendage and increase business margins, provide jobs for people and protect the country from unemployment and economic chaos.

Assessing the ASTARTA HOLDING N.V.`s abilities and competitiveness on the market at the current stage of development – it has sufficient resources for effective management and enough area for developing, using technologies and approaches from USA and EU markets.

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APPENDICES

Appendix A

Formulas for calculating financial performance indicators

1) Absolute liquidity ratio is calculated as follows:

$$Absolute\ liquidity = \frac{Cash\ and\ cash\ equivalents}{Total\ current\ liabilities}$$

2) Current liquidity ratio is calculated as follows:

$$Current\ liquidity = \frac{Total\ current\ assets}{Total\ current\ liabilities}$$

3) Intermediate liquidity ratio is calculated as follows:

$$Intermediate\ liquidity\ = \frac{Total\ current\ assets - Inventories - Bioassets}{Total\ current\ liabilities}$$

4) Own current assets ratio is calculated as follows:

$$Own\ current\ assets = \frac{Equity - Total\ non - current\ assets}{Total\ current\ assets}$$

5) Solvency ratio is calculated as follows:

$$Solvency = \frac{Equity}{Total\ equity\ and\ liabilities}$$

6) Debt ratio is calculated as follows:

$$Debt\ ratio = \frac{Total\ equity\ and\ liabilities - Equity}{Total\ equity\ and\ liabilities}$$

7) Debt coverage ratio is calculated as follows:

$$Debt\ coverage = \frac{Equity}{Total\ equity\ and\ liabilties\ -\ equity}$$

Continuation of Appendix A

8) Current debt ratio is calculated as follows:

$$Current\ debt\ = \frac{Total\ current\ liabilities}{Total\ equity\ and\ liabilities - equity}$$

9) Equity maneuverability ratio is calculated as follows:

$$Equity\ maneuverability = \frac{Equity - Total\ non - current\ assets}{Equity}$$

10) Asset turnover ratio is calculated as follows:

$$Asset\ turnover = \frac{Revenue}{Average\ total\ assets}$$

11) Inventory turnover, times is calculated as follows:

$$Inventory\ turnover, t = \frac{\text{C}ost\ of\ sales}{Average\ inventory + Average\ biological\ assets}$$

12) Inventory turnover, days is calculated as follows:

$$Inventory\ turnover, d = \frac{Inventory}{Cost\ of\ sales} * 365$$

13) Accounts receivable turnover ratio is calculated as follows:

$$AR\ turnover = \frac{Revenue}{Average\ accounts\ receivable}$$

14) Accounts payable turnover ratio is calculated as follows:

$$AP\ turnover = \frac{Cost\ of\ sales}{Average\ accounts\ payable}$$

15) Asset productivity ratio is calculated as follows:

$$Asset\ productivity = \frac{Revenue}{Average\ total\ current\ assets}$$

16) Accounts receivable turnover, days is calculated as follows:

$$AR\ turnover, d = \frac{Accounts\ receivable}{Revenue} * 365$$

17) Accounts payable turnover, days is calculated as follows:

$$AP\ turnover, d = \frac{Accounts\ payable}{Cost\ of\ sales} * 365$$

18) Return on assets is calculated as follows:

$$Return\ on\ assets = \frac{Net\ profit(loss)}{Average\ total\ assets}$$

19) Return on non-current assets is calculated as follows

$$Return\ on\ non-current\ assets = \frac{Net\ profit(loss)}{Average\ total\ non-current\ assets}$$

20) Return on current assets is calculated as follows

$$Return\ on\ current\ assets = \frac{Net\ profit(loss)}{Average\ total\ current\ assets}$$

21) Return on equity is calculated as follows

$$Return\ on\ equity = \frac{Net\ profit(loss)}{Average\ equity}$$

22) Return on borrowed capital is calculated as follows

$$ROCE = \frac{Net\ profit(loss)}{Average\ total\ equity\ and\ liabilities\ -\ Average\ total\ equity}$$

Appendix B

PEST-analysis for ASTARTA HOLDING N.V.

Factor	Factor impact	Expert assessment					Average score	Significance assessment
		1	2	3	4	5		
Political factors								
Unstable political situation in the country;	2	5	3	4	3	4	3.8	0.13
Military conflict;	2	5	5	5	5	5	5	0.17
Laws and regulations imposed by government	3	4	4	2	4	3	3.4	0.18
Deterioration of trade relations with Russia;	1	2	3	3	1	2	2.2	0.04
Economic factors								
High inflation rate;	3	4	4	5	5	5	4.6	0.24
Unstable national currency exchange rate	2	5	4	5	5	4	4.6	0.16
Economic decline caused by the Covid-19 pandemic;	3	5	5	5	5	5	5	0.26
Decline in harvest amounts due to weather conditions	3	5	5	5	5	4	4.8	0.25
Lack of own funds for development;	1	4	3	4	2	3	3.2	0.06
Social and cultural factors								
Low level of staff motivation;	3	3	5	5	5	4	4.4	0.23
Intellectual migration of personnel;	2	4	3	5	2	5	3.8	0.13
Insufficient development of social infrastructure;	2	1	1	2	3	2	1.8	0.06
Technological factors								
Wear and tear and technological obsolescence of fixed assets;	2	3	3	3	4	3	3.2	0.11
Lack of own financial resources to acquire and implement modern technologies;	3	4	5	3	4	4	4	0.21
Lack of state financial support for technological development.	2	3	5	5	4	4	4.2	0.14
Total							58	

Appendix C

Financial information for ASTARTA HOLDING N.V.

Balance sheet (Form 1)

(in thousands of Ukrainian hryvnias)	31-Dec-20	31-Dec-19	31-Dec-18	31-Dec-17	31-Dec-16
ASSETS					
Non-current assets					
Property, plant and equipment	**6,781,766**	7,779,761	8,438,768	7,332,799	7,218,433
Right-of-use assets	**3,293,836**	3,752,857	3,501,109	-	-
Investment property	**84,103**	70,690	74,285	-	-
Intangible assets	**35,872**	35,378	33,826	120,008	82,453
Biological assets	**826,733**	792,939	541,182	751,534	432,310
Value added tax	**-**	-	221,811	570,925	157,275
Long-term receivables and prepayments	**6,510**	20,767	6,621	154,260	68,307
Deferred tax assets	**7,732**	25,095	-	-	-
Total non-current assets	**11,036,552**	**12,477,487**	**12,817,602**	**8,929,526**	**7,958,778**
Current assets					
Inventories	**3,746,605**	5,117,473	7,450,931	6,522,474	6,327,282
Biological assets	**706,329**	425,624	507,540	572,899	390,503
Trade accounts receivable	**466,513**	607,870	699,045	490,873	354,405
Other accounts receivable and prepayments	**854,473**	1,032,787	1,711,526	803,998	941,470
Current income tax	**9,730**	12,551	8,877	27,273	4,833
Short-term cash deposits	**4,986**	18,318	9,013	36,043	37,674
Cash and cash equivalents	**782,825**	326,046	418,882	479,990	315,896
Non-current assets held for sale	**113,313**	**43,283**	-	-	-
Total current assets	**6,684,774**	**7,583,952**	**10,805,814**	**8,933,550**	**8,372,063**
Total assets	**17,721,326**	**20,061,439**	**23,623,416**	**17,863,076**	**16,330,841**
EQUITY AND LIABILITIES					
Equity					
Share capital	**1,663**	1,663	1,663	1,663	1,663
Additional paid-in capital	**369,798**	369,798	369,798	369,798	369,798
Retained earnings	**9,023,483**	8,349,380	7,757,949	8,036,911	5,653,075
Revaluation surplus	**1,926,064**	2,482,363	3,072,159	2,842,286	3,789,642
Treasury shares	**- 119,260**	- 119,260	- 119,260	- 95,934	-95,934
Currency translation reserve	**474,036**	508,868	519,416	495,066	319,962
Total equity	**11,675,784**	**11,592,812**	**11,601,725**	**11,649,790**	**10,038,206**
Non-current liabilities					
Loans and borrowings	**1,218,613**	15,608	17,586	1,499,141	1,369,904
Net assets attributable to non-controlling participants	**24,586**	24,909	41,967	112,307	252,086
Other long-term liabilities	**4,094**	4,093	2,410	17,430	3,421
Lease liability	**2,539,120**	2,731,803	2,505,532	-	-
Deferred tax liabilities	**177,495**	259,791	393,118	345,264	486,393
Total non-current liabilities	**3,963,908**	**3,036,204**	**2,960,613**	**1,974,142**	**2,111,804**
Current liabilities					
Loans and borrowings	**-**	3,874,935	7,217,528	2,361,524	1,886,061
Current portion of long-term loans and borrowings	**625,581**	56,943	160,035	1,019,857	1,243,693
Trade accounts payable	**149,949**	158,145	216,354	235,654	182,399
Current portion of lease liability	**906,285**	953,127	800,629	-	-
Current income tax	**25,580**	45,886	50,199	28,849	28,625
Other liabilities and accounts payable	**315,531**	343,387	616,333	593,260	840,053
Liabilities classified as held for sale	**58,708**	-	-	-	-
Total current liabilities	**2,081,634**	**5,432,423**	**9,061,078**	**4,239,144**	**4,180,831**
Total equity and liabilities	**17,721,326**	**20,061,439**	**23,623,416**	**17,863,076**	**16,330,841**

End of Appendix C

Profit and loss statement (Form 2)

(in thousands of Ukrainian hryvnias)	**2020**	**2019**	**2018**	**2017**
Revenues	**12,927,064**	12,980,155	11,965,965	13,717,000
Cost of revenues	- **10,846,636**	- 11,588,237	- 10,409,590	- 10,660,403
Changes in fair value of biological assets and agricultural produce	**1,621,201**	1,227,501	1,323,420	1,325,569
Gross profit	**3,701,629**	**2,619,419**	**2,879,795**	**4,382,166**
Other operating income	**49,297**	67,603	159,291	152,005
General and administrative expense	- **700,304**	- 681,180	- 775,191	- 726,545
Selling and distribution expense	- **951,472**	- 1,344,480	- 1,376,070	- 1,042,352
Other operating expense	- **359,455**	- 225,506	- 489,419	- 392,776
Impairment of property, plant and equipment	- **55,034**	- 16,096	-	-
Profit from operations	**1,684,661**	**419,760**	**398,406**	**2,372,498**
Interest expense on lease liability	- **673,189**	- 655,074	- 497,072	-
Other finance costs	- **334,267**	- 519,650	- 478,147	- 391,902
Foreign currency exchange (loss)/gain	- **527,750**	717,862	- 40,038	- 259,494
Finance income	**10,754**	34,914	51,077	53,494
Other income	**81,569**	10,015	11,474	6,919
Profit before tax	**241,778**	**7,827**	- **554,300**	**1,781,515**
Income tax expence	- **18,251**	**27,709**	- **132,724**	- **23,243**
Net profit	**223,527**	**35,536**	- **687,024**	**1,758,272**

Appendix D

Forecast financial information assessment for proposed measures for ASTARTA HOLDING N.V.

Balance sheet (Form 1)

(in thousands of Ukrainian hryvnias)	**31-Dec-20**	**31-Dec-21**	**31-Dec-22**	**31-Dec-23**
ASSETS				
Non-current assets				
Property, plant and equipment	**6,781,766**	7,800,851	7,003,564	6,906,278
Right-of-use assets	**3,293,836**	4,768,231	5,722,038	6,675,845
Investment property	**84,103**	101,749	161,819	154,835
Intangible assets	**35,872**	9,476	- 60,470	- 40,413
Biological assets	**826,733**	996,325	840,012	1,127,585
Value added tax	**-**	477,650	540,161	602,673
Long-term receivables and prepayments	**6,510**	- 20,689	- 147,356	- 96,853
Deferred tax assets	**7,732**	18,014	21,617	25,221
Total non-current assets	**11,036,552**	**14,151,606**	**14,081,386**	**15,355,169**
Current assets				
Inventories	**3,746,605**	3,453,280	2,712,906	1,972,531
Biological assets	**706,329**	567,623	492,173	587,442
Trade accounts receivable	**466,513**	571,212	594,790	618,367
Other accounts receivable and prepayments	**854,473**	890,815	866,042	841,268
Current income tax	**9,730**	12,391	- 8,652	6,807
Short-term cash deposits	**4,986**	5,801	- 14,783	- 10,321
Cash and cash equivalents	**782,825**	742,513	827,822	913,131
Non-current assets held for sale	**113,313**	-	-	-
Total current assets	**6,684,774**	**6,243,636**	**5,470,296**	**4,929,225**
Total assets	**17,721,326**	**20,395,242**	**19,551,682**	**20,284,394**
EQUITY AND LIABILITIES				
Equity				
Share capital	**1,663**	1,663	1,663	1,663
Additional paid-in capital	**369,798**	369,798	369,798	369,798
Retained earnings	**9,023,483**	9,577,332	10,195,049	10,806,633
Revaluation surplus	**1,926,064**	1,586,621	1,676,810	904,279
Treasury shares	**- 119,260**	- 119,260	- 119,260	- 119,260
Currency translation reserve	**474,036**	535,208	563,629	592,050
Total equity	**11,675,784**	**11,951,362**	**12,687,689**	**12,555,163**
Non-current liabilities				
Loans and borrowings	**1,218,613**	748,190	623,739	499,288
Net assets attributable to non-controlling participants	**24,586**	- 52,468	- 103,552	- 154,637
Other long-term liabilities	**4,094**	3,504	- 12,227	- 2,380
Lease liability	**2,539,120**	3,634,108	4,361,038	5,087,968
Deferred tax liabilities	**177,495**	90,824	102,981	- 35,909
Total non-current liabilities	**3,963,908**	**4,424,159**	**4,971,979**	**5,394,330**
Current liabilities				
Loans and borrowings	**-**	2,365,970	177,491	826,336
Current portion of long-term loans and borrowings	**625,581**	116,332	- 71,994	- 260,320
Trade accounts payable	**149,949**	132,842	117,359	101,875
Current portion of lease liability	**906,285**	1,303,055	1,563,698	1,824,341
Current income tax	**25,580**	32,846	33,011	33,175
Other liabilities and accounts payable	**315,531**	68,676	72,449	- 190,507
Liabilities classified as held for sale	**58,708**	-	-	-
Total current liabilities	**2,081,634**	**4,019,721**	**1,892,014**	**2,334,902**
Total equity and liabilities	**17,721,326**	**20,395,242**	**19,551,682**	**20,284,394**

Continuation of Appendix D

Profit and loss (Form 2)

(in thousands of Ukrainian hryvnias)	2020	2021	2022	2023
Revenues	12,927,064	12,558,916	12,869,864	13,110,811
Cost of revenues	- 10,846,636	- 10,142,086	- 10,295,039	- 10,447,993
Changes in fair value of biological assets and agricultural produce	1,621,201	1,642,867	1,730,839	1,818,812
Gross profit	**3,701,629**	**4,059,697**	**4,305,664**	**4,481,630**
Other operating income	49,297	8,307	- 27,703	- 63,713
General and administrative expense	- 700,304	- 679,622	- 667,754	- 655,885
Selling and distribution expense	- 951,472	- 1,005,833	- 962,988	- 920,144
Other operating expense	- 359,455	- 261,163	- 228,244	- 195,325
Impairment of property, plant and equipment	- 55,034	- 68,224	- 87,035	- 105,846
Profit from operations	**1,684,661**	**2,053,161**	**2,331,939**	**2,540,716**
Interest expense on lease liability	- 673,189	- 935,892	- 1,146,188	- 1,356,484
Other finance costs	- 334,267	- 363,024	- 344,564	- 326,103
Foreign currency exchange (loss)/gain	- 527,750	- 294,229	- 333,184	- 372,139
Finance income	10,754	- 1,461	- 16,250	- 31,039
Other income	81,569	91,588	115,275	138,962
Profit before tax	**241,778**	**550,143**	**607,028**	**593,913**
Income tax expence	- 18,251	3,706	10,688	17,671
Net profit	**223,527**	**553,849**	**617,717**	**611,584**

Appendix E

Forecast of Capital ratios for ASTARTA HOLDING N.V. for 2021-2023

Indicator	Reference values	31/12/2023	31/12/2022	31/12/2021	31/12/2020
Own current assets ratio	>0.3-0.4	- 0.57	- 0.25	- 0.35	0.10
Sovency ratio	>0.5	0.62	0.65	0.59	0.66
Debt ratio	<0.5	0.38	0.35	0.41	0.34
Debt coverage ratio	>1-1.5	1.62	1.85	1.42	1.93
Current debt ratio	>0.5	0.30	0.28	0.48	0.34
Equity maneuverability ratio	>0	- 0.22	- 0.11	- 0.18	0.05

Forecast of Turnover ratios of ASTARTA HOLDING N.V. for 2021-2023

Indicator	Reference values	31/12/2023	31/12/2022	31/12/2021	31/12/2020
Asset turnover ratio	Increase	2.52	2.20	1.94	1.81
Inventory turnover, times	Increase	3.62	2.85	2.39	2.17
Inventory turnover, days	Decrease	69	96	124	126
Accounts receivable turnover	Decrease	8.98	8.81	9.03	8.73
Accounts payable turnover	Decrease	0.01	0.01	0.01	0.01
Asset productivity	Increase	0.66	0.64	0.66	0.68
AR turnover, days	Decrease	51	52	53	44
AP turnover, days	Decrease	4	4	5	5

Forecast of Profitability ratios of ASTARTA HOLDING N.V. for 2021-2023, in%

Indicator	Reference dynamics	31/12/2023	31/12/2022	31/12/2021	31/12/2020
Return on assets	Increase	3	3	3	1
Return on non-current assets	Increase	4	4	4	2
Return on current assets	Increase	12	11	9	3
Return on equity	Increase	5	5	5	2
Return on borrowed capital	Increase	8	8	8	3