РОЗДІЛ 1.
НАЦІОНАЛЬНА ТА РЕГІОНАЛЬНА ЕКОНОМІКА

1.FEJEZET.
NEMZETI ÉS REGIONÁLIS GAZDASÁG

CHAPTER 1.
NATIONAL AND REGIONAL ECONOMY

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ASSESSING BUSINESS PERSPECTIVES IN THE AUTOMOTIVE INDUSTRY OF UKRAINE: NATIONAL AND REGIONAL ASPECTS OF SECTORAL DEVELOPMENT

Анотація. *У дослідженні розглядаються тенденції розвитку та перспективи бізнесу в автомобільній промисловості України та, зокрема, Закарпаття. Визначено тенденції розвитку ринку праці в Україні, оцінено стан міграційних процесів, рівень безробіття в регіонах України. Наведено результати порівняльного аналізу рівня мінімальної заробітної плати в Україні в розрізі регіонів, категорій та посад. Було вивчено стандартну заробітну плату працівників бек-офісу та менеджменту в автомобільній галузі. Простежено еволюцію нормативно-правового забезпечення державного регулювання розвитку автомобільної промисловості в Україні. Виявлено радикальні зміни в державній політиці розвитку автомобільної промисловості України: від постійної підтримки автовиробників та стимулювання виробництва автомобілів до бюрократичних бар'єрів, перешкод та існуючих ризиків і загроз. Зазначається, що з 2014 року збройна агресія Росії проти України призвела до значного занепаду автопрому. Досліджено ефективність діяльності найбільших підприємств автомобільної промисловості Закарпатської області за 2018-2022 роки. Фінансовими показниками, обраними для аналізу, були співвідношення капіталу до активів, рентабельність активів (ROA), рентабельність власного*

капіталу (ROE) і чистий прибуток (NPM). Зроблено висновок про позитивну тенденцію збільшення обсягів діяльності та покращення фінансової стійкості та прибутковості компаній за останні 5 років. З точки зору інвесторів, найбільш привабливим є «Єврокар», який демонструє позитивну динаміку показника та має найвище значення ROE серед обраних компаній на кінець 2022 року. Близькість до кордону з ЄС, дешева робоча сила та достатня кількість сировини роблять західні області України особливо привабливими для партнерства з європейськими автогігантами. Було наголошено на необхідності створення в регіоні автомобільного кластеру.
Ключові слова: *автомобільна промисловість, тенденції розвитку, динаміка автомобілебудування, ринок праці, бізнес-перспективи галузі.*

JEL Classification: J49, L62, O18

Absztrakt. *A tanulmány Ukrajna és ezen belül is Kárpátalja autóiparának fejlődési trendjeit és üzleti kilátásait vizsgálja. Meghatározásra kerültek az ukrajnai munkaerőpiac fejlődési tendenciái, a migrációs folyamatok helyzete, a munkanélküliség szintje Ukrajna régióiban. Bemutatásra kerültek az ukrajnai minimálbér szintjének régiók, ágazatok és beosztások szerinti összehasonlító elemzésének eredményei. Tanulmányoztuk az autóiparban dolgozó háttér- és vezetői dolgozók általános bérszintjét. Nyomon követhető az ukrajnai autóipar fejlesztésére vonatkozó állami szabályozás szabályozási és jogi rendelkezésének alakulása. Radikális változások derültek ki az ukrajnai autóipar fejlesztésére vonatkozó állami politika terén: az autógyártók folyamatos támogatásától és autógyártás ösztönzésétől a bürokratikus akadályokig, a fennálló kockázatok és fenyegetések kiértékéléséig. Megjegyzendő, hogy 2014 óta Oroszország Ukrajna elleni fegyveres agressziója óta az autóipar jelentős hanyatlásához vezetett. Bemutatásra került Kárpátalja legnagyobb autóipari vállalkozásainak hatékonyságvizsgálaat a 2018-2022. édőszakra vonatkozóan. Az elemzésre kiválasztott pénzügyi mutatók a tőke/eszköz arány, az eszközarányos megtérülés (ROA), a saját tőke megtérülése (ROE) és a nettó jövedelem (NPM) voltak. A szerzők arra a következtetésre jutottak, hogy az elmúlt 5 évben pozitív tendencia alakult ki a tevékenység volumenének növekedésében és a vállalatok pénzügyi stabilitásának és jövedelmezőségének javításában. A befektetők szempontjából a legvonzóbb az Eurocar, amely a mutató pozitív dinamikáját mutatja, és 2022 végén a legmagasabb ROE értékkel rendelkezik a kiválasztott cégek közül. Az EU határának közelsége, az olcsó munkaerő és a kellő mennyiségű nyersanyag teszi Ukrajna nyugati régióit különösen vonzóvá az európai autóóriásokkal való együttműködés számára. Kiemelesre került egy autóipari klaszter létrehozásának szükségessége a régióban.*
Kulcsszavak: *autóipar, fejlődési trendek, az autóipar dinamikája, munkaerőpiac, az ipar üzleti kilátásai.*

Abstract. *The study examines development trends and business perspectives in the automotive industry of Ukraine and particularly in Transcarpathia. The trends of the labor market in Ukraine have been identified, the state of migration processes, the level of unemployment in the regions of Ukraine have been assessed. The results of a comparative analysis of the level of the minimum wage in Ukraine in terms of regions, categories and positions are presented. The standard salary of back-office workers and management in the automotive sector was studied. The evolution of the regulatory and legal provision of state regulation of the development of the automobile industry in Ukraine is traced. Radical changes in the state policy of the development of the automotive industry of Ukraine were revealed: from constant support of car manufacturers and stimulation of car production to bureaucratic barriers, obstacles and existing risks and threats. It is stated that since 2014, Russia's armed aggression against Ukraine has led to a significant decline in the car industry. The effectiveness of the activities of the largest automotive industry companies in Zakarpattia Oblast was studied for the period 2018-2022. The financial indicators chosen for analysis were the capital-to-asset ratio, return on assets (ROA), return on equity (ROE) and net profit margin (NPM). A conclusion was made about the positive trend of increasing the volume of activity and improving the financial stability and profitability of companies over the past 5 years. From the point of view of investors, the most attractive is Eurocar, which demonstrates positive dynamics of the indicator and has the highest value of ROE among the selected*

companies at the end of 2022, namely 19.6%. Proximity to the border with the EU, cheap labor and sufficient raw materials make the western oblasts of Ukraine especially attractive for partnership with European auto giants. The need to create an automobile cluster in the region was emphasized.
Key words: *automotive industry, development trends, dynamics of car manufacturing, labor market, business prospects of the industry.*

Problem statement. The automotive sector in Ukraine and particularly in Transcarpathia was experiencing swift advancements until the outbreak of war. Zakarpattia region showed a potential for growth in the automotive industry due to its strategic location, skilled labor force, and proximity to major European markets. The automotive sector in Transcarpathia began to attract investments and attention, primarily in the form of component manufacturing, assembly, and related services. Since 2014, Russia's military aggression towards Ukraine has resulted in a substantial downturn in the automobile industry. The conflict severed economic connections between the two countries, leading to a halt in car production. The ongoing war, deemed an unwarranted and unjustified military aggression by Russia against Ukraine since February 2022, has not only adversely impacted the domestic automotive industry but has also according to Wayland M. [1] cast a shadow on global passenger car production forecasts.

In the conditions of the new reality, the Ukrainian business had to solve issues related to production, logistics, personnel support, fulfilling obligations to the state and restoring profitability or at least approaching the pre-war level. One of the strategies for solving these problems was the gradual transfer of business from the east to the western regions of Ukraine and abroad. According to the Zakarpattia Oblast Military Administration (OMA) and the Ministry of Economy, Zakarpattia is the second region after Lviv in the number of relocated businesses in Ukraine. Nowadays, in conditions of martial law, the region is the safest place for living and running a business in conditions of the martial law in Ukraine.

The automotive industry holds immense significance as a key driver of economic growth, technological innovation, and employment across the globe. Understanding its business perspectives is crucial for several reasons. The automotive industry is a major contributor to the economies of many countries. It generates substantial revenue, creates job opportunities, and fosters economic development through various interconnected sectors, such as manufacturing, supply chain, and services. The automotive sector is at the forefront of technological advancements: innovations in this industry often pave the way for advancements in other sectors. Understanding its business perspectives is essential for investors, financial analysts, and stakeholders to make informed decisions and navigate the dynamic nature of the industry, as well as for staying abreast of cutting-edge technologies and their potential impact on diverse industries.

Literature review. This study is a continuation of the research started in 2021, the results of which are presented in the papers [2-4]. Among prior studies, which emphasize the importance of the current study, are works of M. Dmytrychenko, M. Kyzym, O. Kryvokon, M. Mishchenko, G. Pasov, A. Redzyuk, V. Chupryna, I. Shevchenko, and

O. Yazvinska. Particularly, in the monograph (I.Shevchenko, 2019), the author proposed a systemic view on progress of the automobile industry as well as developed a methodology for assessing competitiveness and a concept of the state program for the growth of industry until 2025 [5]. The work of Y. Savelyev, V. Kuryliak, K. Darvidou, M. Lyzun, I. Lishchynskyy [6] is devoted to the issues of transformation of Ukrainian Automotive Industry based on introduction of electric vehicle production were considered among priorities (Y. Savelyev, V. Kuryliak, K. Darvidou, M. Lyzun, I. Lishchynskyy, 2021). However, the rapid change in business conditions and global challenges affects the development trends of the automotive industry not only in Ukraine, but also throughout the world, which requires updating such research.

Goals of the article. The aim of the study is presenting analytical conclusions on trends in the development of the automotive industry at the national and regional levels under martial law in Ukraine.

Research results and discussions. The given study is focused on three main aspects in the automotive industry of Ukraine, namely on labor market, development tendencies and state regulation procedures during 2016-2022. A characteristic feature of the labor market is the presence of disparities between supply and demand, which are expressed in professional qualifications, gender, age, industry and territorial (regional) aspects. These imbalances in practice lead to a significant outflow of labor abroad. The main reason for the labor migration of Ukrainians abroad is the difficulty in finding decently paid work at home. Over the past five years, the economic factors of migration have intensified politically and security-wise, leading to a rapid increase in migration sentiment and the intensity of migration.

According to the UNHCR data, as of December 1, 2023, 6,3 million Ukrainian citizens remained abroad because of the war [7]. That said, approximately 5,9 million Ukrainians stayed in European countries, to a greater extend in Poland and Germany.

Before the war started that there was a slight increase in the employment rate in the automotive industry, but in totally due to the unstable political situation, the conflict in the East the number of economically active population was constantly declining, and the unemployment rate was rising, especially in the eastern regions of Ukraine. Thus, the biggest increase in load of registered unemployed per vacancy by regions were in Zaporizhya, Donetsk and Luhansk Oblasts.

Considering the salary proposals for different categories of employees offered by different employment sites, we observe significant differences and fluctuations. Thus, the average salary of a production line operator fluctuated on average at $ 400-450. The highest average salaries were offered in Zaporizhia, Poltava, Lviv and Dnipropetrovsk regions, amounting to $500-560 in 2020-2021 (Fig.1).

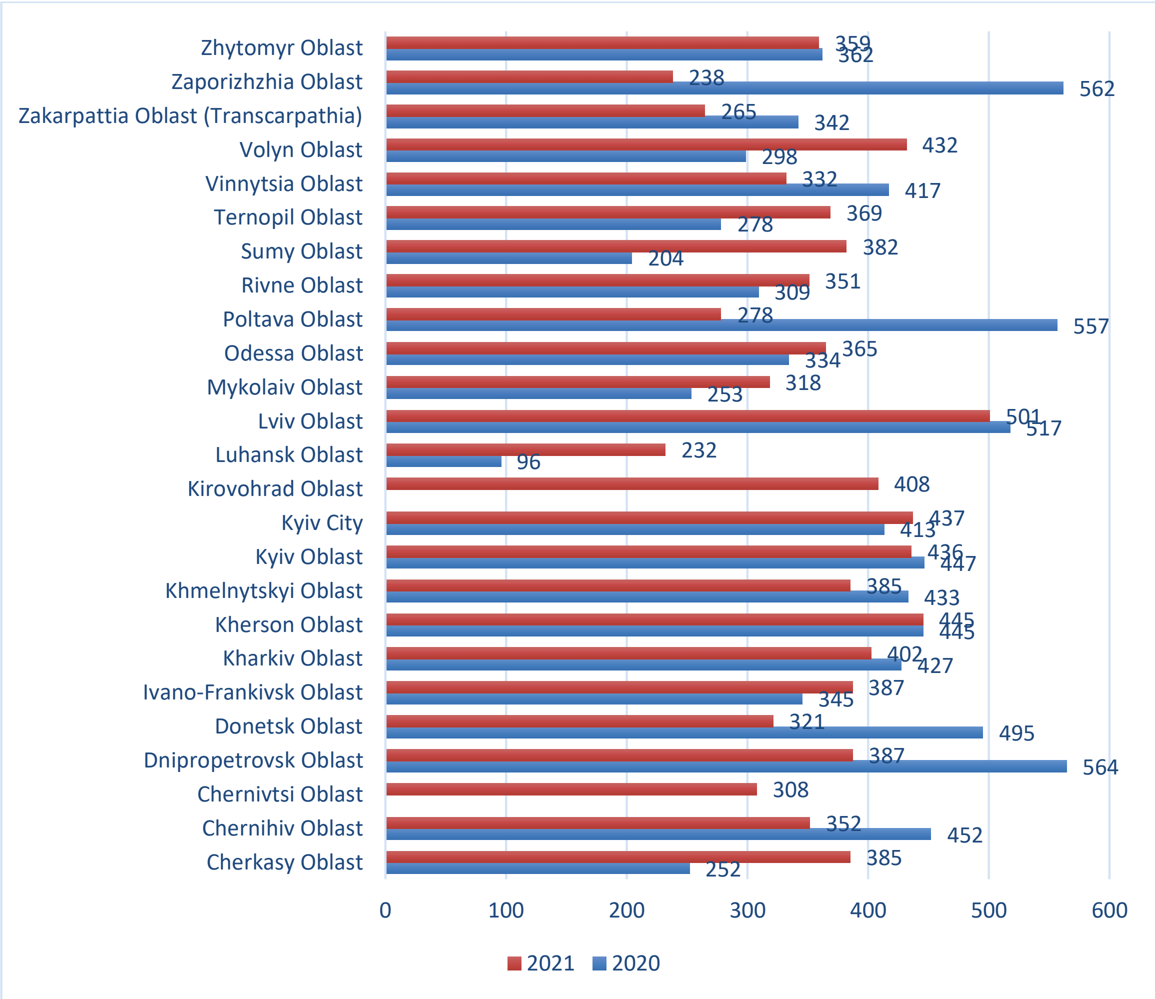

Fig. 1. The average amount of the offered salary to the production line operators by regions of Ukraine for 2020-2021, USD

Source: calculated by the authors based on International Organization of Motor Vehicle Manufacturers [7].

Kyiv City has the highest size of average wage for positions of sales manager, accountant and chief accountant. The lowest indicators in four positions of six are in Luhansk Oblast. It means that Kyiv as the capital is the place with the highest concentration of officially registered offices with a special need in personal, concentration of capital etc.

Moreover, the structure of employment has changed due to quarantine, the corresponding economic downturn and at last the war. Although companies abstained from layoffs during the 2020 pandemic, declining economic activity has led to staff reductions.

In recent years, with the exception of the pandemic period, the "lack of qualified personnel" factor has been steadily gaining weight in business surveys as one of the reasons for holding back corporate profits. During the corona crisis, the impact of this factor decreased due to reduced economic activity. However, since the beginning of

2021, the shortage of quality staff has increased again, which has affected the growth of wages.

Due to the war an increase in labor force and Ukrainian migrants' spending abroad are positive for the economies of host countries, although a large wave of migration created a number of challenges, including for state finances. At the same time, the net fiscal effect will be positive for Europe in the long run, as Ukrainians are actively integrating into the European labor market and are paying taxes. According to calculations of NBU Ukrainians' expenses abroad more than tripled in 2022 compared to the previous year, reaching USD 2 billion per month. Spending on Ukrainian migrants also spurs government consumption, particularly on housing infrastructure, healthcare, and education (taking into account the large percentage of children, which ranges from 28% to 44% in various countries).

When analyzing development industry trends we focused on two aspects - trade and manufacturing infrastructures. Starting from 2016, there is a growing trend in the number of new cars sold in Ukraine. The increase in market capacity was due to actions that facilitated the preferential import of cars to the secondary market, namely a special law came into force that introduced a reduction in the excise tax rate on the import of used vehicles. Since 2017 the import and registration of used cars in Ukraine has intensified and their market share has increased from 24% in 2016 to 81% in 2020. Simultaneously, the share of imported new cars decreased by market from 71% to 18% in 2020.

In 2021, the total number of new cars sold on the Ukrainian market amounted to 103,650 units, which is 22% more than in 2020. This is the highest figure since 2013, although a record for the last 8 years, is small compared to EU countries. For example, in Poland in 2021 new cars were sold four times more.

Ukraine has been a member of the WTO since 2008 and has an expanded free trade area with the EU, Canada and a number of other countries. With the acquisition of full membership in the WTO, Ukraine has received additional rights to use a set of measures to protect the internal market. However, these rights have not been fully exercised in relation to the national automotive industry. On the contrary, by signing the Agreement on Accession to the World Trade Organization (WTO), Ukraine reduced the import duty on imports of cars by 2.5 times, which negatively affected the domestic automotive industry and fully opened the market for imports of foreign cars to Ukraine. And for the period 2008-2012, the vehicle market has halved, and the share of foreign cars has increased from 50 to 89%. Production of Ukrainian cars decreased 6 times (83,5%) (Fig.2).

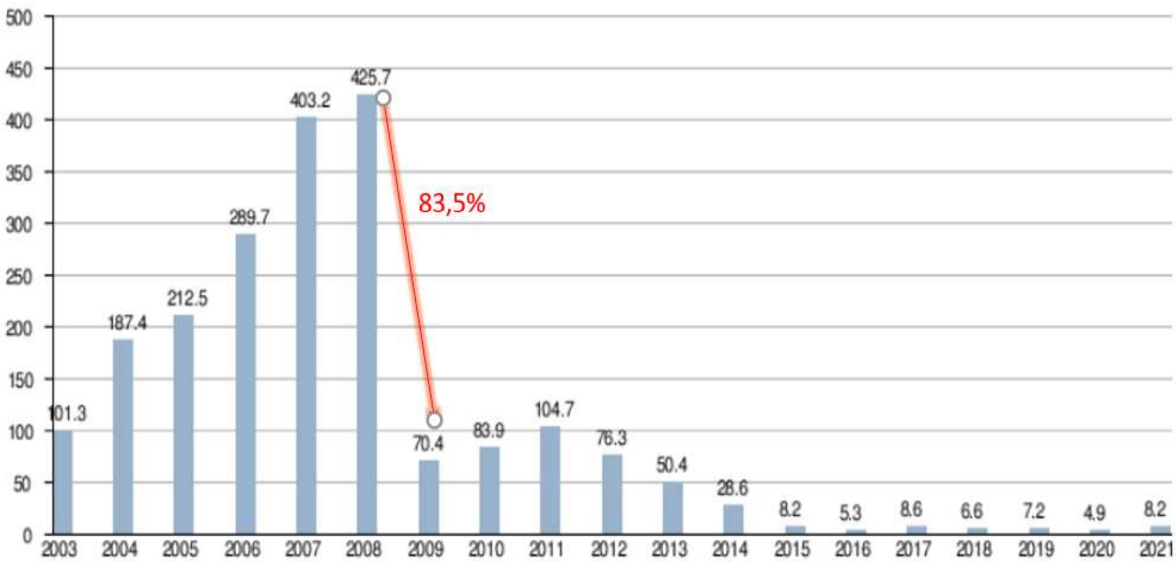

Fig.2. The volume of production of passenger cars in Ukraine in 2003-2021, *thousands of units*

Domestic manufacturers were negatively affected by the lack of state support, as well as the presence of serious pressure from the expansion of foreign cars. In addition, the conditions caused by the signing of the Association Agreement with the EU and accession to the WTO were clearly losing to the domestic engineering industry, and as a result, preferences for domestic vehicle manufacturers were abolished. In addition, there was a lack of consistent and active government action to prevent the crisis in the automotive industry.

Automotive industry of Transcarpathia has an important leverage effect on state with number of employees, diversity and capacity of the component manufacturers, share in the industry's income [3]. A large number of companies operating in the Transcarpathian region produce products for the automotive industry. The largest regional companies in the sector are Jabil, Eurocar, Yazaki and Flextronics - they occupy the first to fourth place in their market. Key market and financial indicators of main companies in the region are presented in Table 1. As it can be stated according to the given data, Jabil and Flextronics simultaneously show a positive trend in increasing market share for the period 2018-2022. Their market share increased accordingly from 58% to 74% and from 18% to 32%.

Smaller companies (Tochprilad and Forshner), which occupy only 1-2% of the market share, also show a positive trend of improving their market positions (in terms of market share, market place and place in the sector) during the period.

When calculating the market indicators, the role of each company played in the relevant sector or market in view of the main activity was taken into account.

Table 1.
Key market and financial indicators of the automotive industry companies operating in the Transcarpathian region*

Indicator	YEAR	Jabil Circuit Ukraine Limited LLC	PrJSC Eurocar	LLC Yazaki Ukraine	FACTORY "FLEXTRONICS LLC"	"Forshner Ukraine" LLC	Mukachevsky plant "Tochprilad"
Market share, %	2018	58,71	29,55	14,37	18,71	1,05	1,24
	2019	58,78	27,85	8,67	25,62	0,85	0,97
	2020	58,21	26,58	6,29	28,85	1,14	1,06
	2021	68,68	26,11	5,38	30,20	1,42	2,37
	2022	74,60	17,35	6,94	32,94	1,38	2,22
The company's place in the market	2018	1	1	1	2	20	16
	2019	1	1	4	1	19	19
	2020	1	1	5	1	18	13
	2021	1	1	6	1	15	8
	2022	1	2	4	1	12	9
Relative revenue growth for the year, %	2018	32,8	2,4	61,2	49,1	17,3	-2,8
	2019	-5,9	18,3	-29,0	36,1	-4,4	-19,0
	2020	-5,1	-8,9	-32,3	26,3	25,5	4,4
	2021	24,6	24,4	-4,0	27,6	39,1	45,7
	2022	15,2	-29,5	65,7	5,7	25,3	12,8
The company's place in the sector of its main activity by revenue	2018	191	84	94	267	1292	1629
	2019	212	74	152	195	1390	2034
	2020	221	77	223	144	1166	1925
	2021	189	70	251	117	819	1260
	2022	153	97	139	107	746	1311
Equity-to-Assets	2018	77,6	13,2	-5,6	-131,2	-227,2	79,3
	2019	66,8	20,5	-14,9	-47,3	-208,0	79,9
	2020	86,3	18,5	-29,1	-63,1	-150,8	68,4
	2021	82,2	23,7	-16,8	-29,6	-95,0	68,1
	2022	78,6	23,8	0,4	-39,0	-62,1	63,8
ROA,%	2018	9,1	7,9	-4,3	5,1	-102,4	2,1
	2019	-2,4	11,3	-2,8	27,6	-55,9	-2,2
	2020	4,9	-2,2	-26,8	-20,3	-66,6	6,2
	2021	7,0	3,7	-7,5	19,5	-13,5	1,3
	2022	8,0	3,9	-7,2	-11,5	4,5	8,5
ROE, %	2018	21,4	-	-161,8	-	-36 835,0	2,8
	2019	-3,2	122,8	-	-	-	-2,7
	2020	6,0	-10,5	-	-	-	10,0
	2021	9,4	18,6	-	-	-	1,9
	2022	11,4	19,6	-95,1	-	-	15,4
Net Profit Margin (NPM)	2018	8,4	7,1	-2,1	6,5	-49,6	2,9
	2019	-2,4	7,0	-1,1	35,2	-37,0	-3,7
	2020	5,1	-1,5	-19,0	-22,5	-60,4	12,6
	2021	6,7	1,9	-5,7	21,7	-16,2	1,8
	2022	7,7	3,3	-5,6	-13,0	6,1	13,3

**Source:* compiled by the authors based on the YouControl data (https://youcontrol.com.ua)

In order to understand financial stability and profitability of the chosen companies, a few financial indicators was selected for analysis, namely *Equity-to-Assets, Return on assets (ROA), Return on equity (ROE)* and *Net profit margin (NPM)*.

1) As Table 1 shows, three of six companies (Yazaki, Flextronics and Forshner)

have problems with their solvency during the given period, namely with their equity capital adequacy. Eurocar has a high dependence on debt capital, as the share of equity capital in the total assets by the end of 2022 was only about 24%. Only Jabil and Tochprilad have the optimal value of the indicator, since their share of equity in the balance sheet exceeds 60%.

2) Negative values of *Return on assets (ROA)* indicate losses, as in case with both companies Yazaki Ukraine LLC and Forshner Ukraine LLC. Such companies from the sample as Mukachevsky plant "Tochprilad" and Jabil Circuit Ukraine generate the largest return on assets – their ratios were 8.5% and 8% accordingly.

3) Negative values of ROE indicate losses. If the capital value is negative, the coefficient is not calculated. This situation with a negative value of equity is observed in three companies - Yadzaki, Forshner and Flextronics. From the point of view of investors, the most attractive is Eurocar, which demonstrates positive dynamics of the indicator and has the highest value of ROE among the selected companies at the end of 2022, namely 19.6%.

4) According to the value of *NPM* the activities of Yadzaki and Forschner are completely unprofitable during the years 2018-2022, although the latter company went into profit-making activities in 2022.

In general, all the above-mentioned companies have shown a positive trend of increasing the volume of activity and improving financial stability and profitability of the given companies over the past 5 years.

Given the set of factors, influencing the automotive industry of Ukraine, the necessary of attracting foreign investment in the automotive industry through the formation of a favorable investment climate, as well as activation and stabilization of state support for the industry can be indicated. Improving product quality by modernizing production, as well as through the introduction of new technologies are also among key factors for industrial development.

Conclusions and prospects for further research. Investigating current state and development trends of the automotive market in Ukraine, it could be declared, that proximity to the border with the EU, cheap labor and sufficient raw materials make Western oblasts of Ukraine attractive to partners of European auto giants. In Ukraine, small parts are made for almost all European cars, including premium brands. These are mostly parts that require a lot of manual work, such as laying cable networks or sewing car seats. That's why Transcarpathia, Lviv and Volyn regions are the most attractive for production capacity placement and the volume of revenue turnover and number of employees there are bigger compare to other regions.

Although there is currently no automotive cluster in Ukraine, there are prerequisites for its creation in the Transcarpathian region on the basis of PJSC "Eurocar", which according to the integrated assessment has the highest innovation and investment potential among Ukrainian automakers.

In May 2018, discussions took place regarding the potential establishment of a cluster in the Transcarpathian region. This discourse occurred during a Round Table event organized by the Federation of Employers of Ukraine and Eurocar, with support from the German-Ukrainian Chamber of Commerce. Participants acknowledged that the prerequisite for cluster development in Transcarpathia could be the presence of established major players in the automotive sector, including Eurocar, Jabil Circuit, Yazaki etc. The Transcarpathian region currently serves as a hub for numerous companies engaged in automotive industry production, positioning it as a practical center for cluster initiatives and a trailblazer in developing clusters for the automotive industry and other high-precision sectors.

Consequently, further exploration could focus on the potential collaboration with leading European partners to establish an automotive cluster in Ukraine. Given the volatility of oil markets and the imperative to enhance environmental sustainability, there is a growing need to shift attention towards the production of electric vehicles.

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