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# ОРГАНІЗАЦІЯ ВИРОБНИЦТВА, МЕНЕДЖМЕНТ. ЕКОНОМІКА ПІДПРИЄМСТВА

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*Bugrim O.Yu., Kolesnik E.O. \**

## ANALYSIS OF COMPETITIVENESS OF ENTERPRISES IN THE SCALE OF THE METALLURGICAL INDUSTRY OF UKRAINE

Ukrainian State Chemical and Technological University, Dnipro, Ukraine

\* Classic Private University, Zaporozhye, Ukraine

The article is devoted to the research of the current state and tendency of development trends of domestic metallurgical enterprises of Ukraine and the world. The metallurgical industry plays a significant role in shaping the country's needs in ferrous and non – ferrous metals. Selling products for export, the metallurgical industry is primarily one of the major suppliers of currency. The article reviews world steel production according to the World Steel Association. Over the past five years, Ukraine is in the list of the world's largest steelmaking producers, and occupies the 13th place (in 2018) among the top countries of steel producers. The paper examines the dynamics of steel production in the world's leading countries over the past five years. The reasons for the slowdown in the development of metallurgical enterprises of Ukraine were analyzed: outdated technologies, increased competition in the market, depreciation of fixed assets, insufficient investment in metallurgical sector, small assortment of products. Reasons of the crisis of world metallurgy are analyzed. The mechanism of regulating the consequences of the crisis, the consolidation metallurgical industry, which occurs according to general principles of globalization economy of world division of labor and provides a change in production growth centers, redistribution of natural and energy resources. This tendency is clearly traced in the domestic metallurgical sector, where the level of consolidation is ensured by three largest Ukrainian holdings: Metinvest Group, Industrial Union Donbass Corporation, Interpipe Group, OJSC Arcelormittal Kryvyi Rih (OJSC Kryvorizhstal). The size of these producers amounted to more than 70% of the domestic market of Ukraine. It is emphasized that the priority factors contribute to the formation of consolidation of domestic metallurgical enterprises. Determined which factors constrain the development of the metallurgical industry and the proposed ways of their elimination.

**Keywords:** metallurgical industry, production, competitiveness, consolidation, development perspectives.

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### *Problem statement*

Metallurgical complex of Ukraine acts as one of the basic elements of the country's economy. The basis of industrial production of Ukraine from the beginning of independent existence of the country and the present, is the steel industry. The question of effective operation of metallurgical enterprises are gaining relevance, because Ukraine has significant potential. For a long period, the main branch of

domestic industry was metallurgical. Now metallurgical enterprises reduce production volumes and lose profitable market positions. Therefore, the development of metallurgy in Ukraine needs a complete analysis, identifying problems and further development of recommendations regarding their strategic development and launching of enterprises to the global level.

### *Analysis of recent researches and publications*

Factors of economic competitiveness of

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Ukraine were investigated by such scientists as: S. Dorohuntsev, Y. Makogon, O. Alimov, I. Dahno, Y. Zhalylo, B. Paton and others.

Metallurgy has particular importance for the domestic economy, both in scientific literature. Studying the situation and defining the prospects of development of the steel sector of Ukraine studied by many scientists, in particular, development areas of development dedicated work: S. Kulysko, V. Bolshakova, O. Klenina, V. Mazura, A. Pivovarsky and others. At the same time, there is not enough research on the peculiarities of the present state, problems and prospects of steel enterprises in Ukraine.

**The purpose of the article**

Is to identify the problems of steel enterprises in Ukraine and elaborate recommendations to improve their competitiveness.

**Presentation of main research material**

Ukraine is one of the few countries that meet the needs of the metallurgical industry with its own resources. These include reserves of iron and manganese ore, fluxes, coking coal and other mineral resources. The largest metallurgical of Ukraine include 19 metallurgical enterprises, 12 pipe factories, more than 20 methyl enterprises, as well as over 100 companies for the processing of metal scrap and wastes. [1, p. 4-6].

World practice shows that the plays a major role in the development of the metallurgical industry. Decisions regarding the construction of huge metallurgical plants are made based on macroeconomic or geopolitical objectives. The development and development of the raw material base is under the control and with the participation of the state [2].

Metallurgical industry of Ukraine is one of the leading domestic branches of the country. According to the results of 2019, Ukraine ranks 10th in the world among iron producers and 13th in steel production [3]. Indicators of development of Ukraine for 2019 demonstrate that in comparison with past crisis years Ukraine slowly restores the leading position in the world market among the most developed countries. With the help of this metallurgical industry is restored and needs development, support in the following spheres:

- the enterprises started actively searching for new partners and new sales markets; and also increased sales by old buyers;
- integration into global world processes and increasing standards for compliance in the world market.

In 2019, 30% of Ukrainian foreign exchange revenues accounted for the metallurgical industry [4]. The largest steelmakers in the world include: China, India, Japan, USA, South Korea, Russia,

Germany, Turkey, Brazil, Italy, Iran, Taiwan, Ukraine (table 1). Over the past 5 years, the figures of steel production in China (+119.5 million tonnes) and India (+17.1 million tons) increased, this indicates an increase in competition in the world steel.

The largest share of steel is produced in China, which is 51.3% of the world’s production. 20 largest countries, with steel production, made in the aggregate of over 90% of world production.

At the same time, the world’s largest consumers of steel in 2018 were China, the United States, the European Union and Japan. In particular, there are countries that do not produce metallurgical industry or produce insufficient number to meet internal needs, namely countries of Middle East, South and Central America, Africa [5]. (Table 1).

In comparison with the top countries of steel producers, Ukraine in 5 years has reduced the production of steel by 1.9 million tonnes, in turn, China and India increased the production of steel by about 15% (Fig. 1). Reducing data volume has not affected the country’s positions in the rankings. You can also see in Fig. 1 that Ukraine is not the only one of the leading countries for which the reduction of production is inherent: in Japan, Germany and Taiwan (China), this phenomenon is also widespread, the main reason of which is the unfavorable economic situation in the world. For Ukraine, the key problems that exist in the middle of the country and associated with a complex political situation, economic instability, carrying out military operations in regions with the highest concentration of enterprises of the metallurgical complex. In general, there is a reduction in the role of steel producers in the global production and capacity building in the countries that are developing. The given process is related to the displacement of ferrous

Table 1  
Top countries-producers of steel for 2015 and 2018, million tons [3]

№ rate	Country	Production in 2015	Production in 2018
1	China	808.8	928.3
2	India	89.4	106.5
3	Japan	105.2	104.3
4	USA	78.8	86.6
5	Korea	69.7	72.5
6	Russia	70.9	71.7
7	Germany	42.7	42.4
8	Turkey	31.5	37.3
9	Brazil	33.3	34.9
10	Italy	22.0	24.5
11	Iran	16.1	24.5
12	Taiwan, China	21.4	23.2
13	Ukraine	23.0	21.1

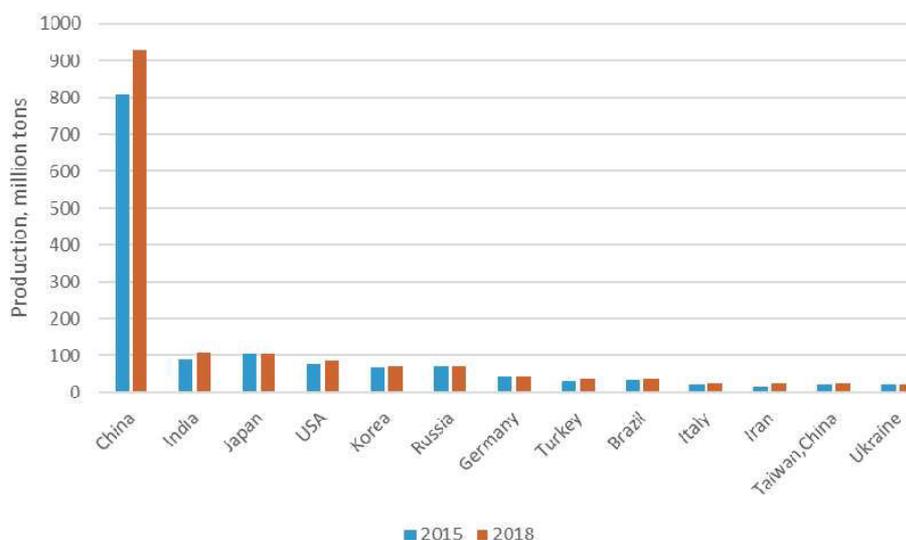


Fig.1 Steel production in comparison with the countries-leaders [4]

metals closer to the main regions of high-quality ore production, as well as a growing sales market in these countries [6].

From the above rating of the main players of the world market of metallurgy, we see the significance of Asian region. Economic policy which creates:

- the main trends in the development of metallurgy and causes change of flow directions of raw materials and finished products;
- great increase in energy and transport component in the cost of finished products;
- sharp rise in prices for ore raw materials and chark;
- reduction of production due to deficit and high cost of raw materials in industries of the USA and Europe.

At the same time, the higher cost of production of liquid steel in comparison with the countries of the Asian region, as well as unfavorable economic conditions in the European economic sphere, resulted in closure or suspension by the organizations of steelmaking capacities and restructuring their own European assets. Therefore, in the European metallurgical industry, attention is moved to the production of liquid steel to produce final products with high added value, the demand for which is more stable.

The reduction and slowing of industrial production growth in the developing countries, which has been observed over the past few years, has resulted in a corresponding slowdown in use steel rates and reduced load capacity, and as a result, reduced demand and prices for metallurgical raw materials. According to the World Steel Association Global consumption of steel products for 2015–2018 increased by 15% from 1620.9 million tons – in 2015 to 1808.4 million tons – in 2018 [4].

In particular, the increase in imbalance among the volume of use metal products and the volume of steel production in recent years has led to the displacement of the centers of production and consumption of developing countries (Asian region countries), while a significant proportion of production capacities in the developed economies of the world remains idle, leading to the chronic non-loading of production facilities.

According to I. Kulik, Z. Magrupov, O. Panchenko, V. Rozhko, A. Turilo in the conditions of the general economic crisis and uncertain possibilities of exit from it, export orientation of ferrous metallurgy due to reduction of domestic consumption has the character of forced survival strategy, establishment not only for industry, but also for the whole economy [7–12].

Effective mechanism to reduce the negative effects of the crisis on the world market of metal products is consolidation metallurgical industry, which is carried out by the general rules of globalization of the economy and the world Division of labor. This includes:

- changes in production growth centers;
- creation of transnational industrial giants;
- redistribution of natural and energy resources.

This tendency is traced in the domestic metallurgical sector, where the level of consolidation is ensured by the largest holdings:

- metinvest Group;
- interpipe Group.

The size of the above-mentioned holdings equals more than 70% of the domestic market of Ukraine, and taking into account the OJSC «Akselormittal kryvyi Rih» (OJSC «Kryvorizhstal»), which became a member of the world leader in metallurgical industry – ArcelorMittal Corporation, – about 90% of the domestic market of Ukraine

[13].

If we turn to the history of the metallurgical industry of Ukraine with the question how the consolidation took place, we will receive an answer about two directions of consolidation development:

– through acquisition by domestic metallurgical industrial and financial groups of foreign assets, on inaccessible for Ukrainian metallurgy markets, in particular in Europe and America;

– acquisition by foreign financial and industrial groups of assets in Ukraine.

Consider in more detail each direction separately. The first direction is caused by:

– approaching to promising sales markets and leveling tariff and non-tariff barriers;

– the vulnerability of the domestic mining metallurgical complex from external negative impacts;

– increased volume of exports of high-redistribution metallurgical products;

– providing access to additional financial resources in the international financial markets, which are required for the further development of Ukrainian steel enterprises.

The following consolidation path is used by metallurgical enterprises, which are provided with their own sources of raw materials, but need to enter the promising markets. At this, if in the beginning of consolidation processes in the metallurgical industry of Ukraine, domestic enterprises were bought in Europe and America «all in a row», only to be able to declare that the company owns assets in «developed» countries, now domestic industrial and financial groups accurately approach the selection of foreign assets in terms of profitability and future investment.

The second direction of consolidation is due to the fact that Ukrainian metallurgical enterprises, which are not provided with their own raw materials, found themselves in unfavorable situations, and were forced to create unions of steel producers with the owners of raw materials sources. An example of the consolidation of the Ukrainian Metallurgical branch through acquisition of foreign financial and industrial groups of assets in Ukraine is the acquisition by the world's strongest steel companies Mittal Steel Ukrainian Metallurgical Enterprise Kryvorizhstal OJSC. In the future, it enabled firstly to successfully unite the two world Giants (Mittal Steel i Arcelor), second to become a worldwide number one company in the metallurgical space.

Select key factors that pushing metallurgical enterprises to consolidate:

– growth of costs caused by the increase in prices of raw materials and energy, which at consolidation can be reduced by energy effects;

– the growth of the world volume of steel,

which will lead to an aggravation of intra-sectoral competition due to the emergence of new enterprises, it is associated with the increase in demand for steel products;

– high market concentrations in the production of iron ore compared to the steel industry, which leads to imbalance relationships between buyers and suppliers of iron ore raw materials;

– weak influence of steel producers on market prices of its products, which does not allow confidently to make foreknowledge on future cash flows.

Current world market of metal products is characterized by excess of supply over demand in conjunction with active geo-economic shifts in production centers and consumption of steel. Proceeding from this, Ukrainian metallurgical enterprises are very difficult to compete with the world's leading metallurgical giants, and with the closest competitors. Metallurgical enterprises that remained from the Soviet Union, due to its production facilities, allowed Ukraine to take place among the main players in the world market of metal products.

Metallurgical enterprises have a large number of cooperative relationships. Therefore, the economic performance of metallurgical enterprises is determined by many governing influences on the part of state bodies. The major part of the costs of metallurgical production (60–80% depending on its type) is formed under the influence of energy and transport tariffs, tax rates [14].

The domestic market of Ukraine has a considerable degree of saturation of domestic products, while its capacity remains insignificant. This is indicated by the export orientation of most of the major producers of metal products in Ukraine. Export of sales is 40–90% (Table 2). However, even with this, the production capacities of metallurgical enterprises remain underused.

The current prospects of the domestic market for metal products are estimated by experts to a maximum of 10–11 million tons, which is almost three times less than in terms of exports. Consider the structure of internal consumption of rolled metal (Fig. 2).

The decrease in demand in the domestic market is explained by the fact that in recent years there has been a fall in production in the sectors of the economy, which form the main demand for metal products. The most significant decrease was recorded in the field of mechanical engineering in 2017 (by 14.1%). It also affected the volume of internal consumption of metal, the decrease in the volume of construction (in 2017 the index of construction products equaled 87.7% by 2015) in the construction industry for metal products.

Table 2

## Indicators of activity of major producers of metallurgical complex of Ukraine [15]

Name of Company	Main products	Sales volume, mln. UAH	Export share, in sales, %	Net profit / loss, mln. UAH		Wear, %
		2017	2017	2016	2017	2017
PJSC "Metallurgical Works" "Azovstal"	Cast iron, steel, chark, ferroalloys	23843.2	64.4	915.9	-1835.5	-
PJSC "Zaporozhye Metallurgical Combine" "Zaporizhstal"	Cast iron, steel, ferroalloys	28498.1	-	1120.6	1805.0	-
ArcelorMittal Kryviy Rih PJSC	Cast iron, steel, chark, ferroalloys, chark products	42952.1	-	-1180	1384.7	44.4
PJSC "Electrometallurgical Plant" "Dnipropetsstal" named after Kuzmina"	Cast iron, steel, ferroalloys	6850.3	55.9	-880.6	-706.6	-
PJSC "Mariupol Metallurgical Combine named after M. Ilyich"	Cast iron, steel, ferroalloys	29498.5	43.0	453.6	-1585.9	-
PJSC "Enakievo Metallurgical Plant"	Cast iron, steel, ferroalloys	12129.6	41.7	-390.6	-544.5	13.6
PJSC Dniprovsky Metallurgical Combine named after Dzerzhinsky"	Cast iron, steel, ferroalloys	16596.6	91.4	-1868	-1389.5	-

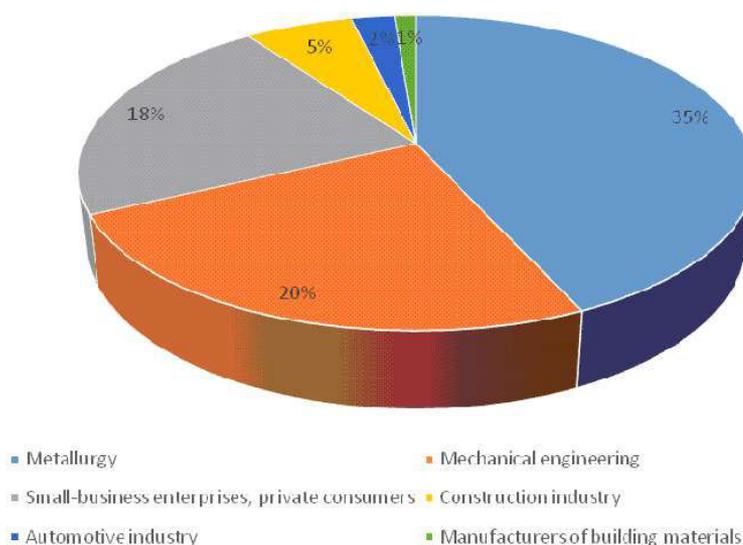


Fig. 2. Consumption of rolled metal products in Ukraine [13]

The situation on the domestic market has been declining by the aggravation of the 2014 armed conflict in the Donbas, where Ukraine's largest metallurgical capacity is located. As a result of damage to transport infrastructure and railway tracks in the area of hostilities, the supply of basic raw materials (chark, chark coal, iron ore) and shipment of finished products to almost all metallurgical and chark-chemical enterprises of Donbass became complicated.

Thus, if the global market for ferrous metals is

gradually improving, and the conflict in the Donbass does not go even further, then Ukraine will be able to retain its 13th place in the world ranking of steel producers. At the same time, it is possible that domestic metallurgical enterprises will gradually increase the share of products with a high share of value added in the total volumes of their production. The obstacle to such development of Ukrainian ferrous metallurgy may be a significant deterioration of the global market for steel and other ferrous metals, or the deployment of large-scale hostilities in the

Donbass.

### Conclusions

Solving the problems of domestic metallurgical industry of Ukraine in the conditions of global competition is possible only by the further consolidation of the metallurgical industry, by creating high-tech productions within the framework of integrated structures. The further development of steel enterprises should be carried out by strengthening the innovative component of production, manufacturing products with high added value, orientation mainly on the production of high-quality steels and special products, the embodiment of energy and resource-saving technologies. That is why one of the priority tasks for metallurgy in Ukraine is the increase of investment attractiveness of all segments of investment market and, first of all, metallurgical enterprises, because they have high potential for innovative development.

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## АНАЛІЗ КОНКУРЕНТОСПРОМОЖНОСТІ ПІДПРИЄМСТВ В МАСШТАБІ МЕТАЛУРГІЙНОЇ ПРОМИСЛОВОСТІ УКРАЇНИ

Бугрім О.Ю., Колесник Е.О.

Статтю присвячено дослідженню сучасного стану і тенденції розвитку вітчизняних металургійних підприємств України та світу. Металургійна промисловість відіграє суттєву роль та формує забезпечення потреб країни у чорних і кольорових металах. Реалізуючи продукцію на експорт, металургійна промисловість насамперед виступає одним з основних постачальників валюти. У статті розглянуто світове виробництво сталі за даними асоціації World Steel Association. Протягом останніх п'яти років Україна входить до переліку найбільших у світі виробників металургійної продукції та займає 13-тє місце (у 2018 році) серед топ-країн виробників сталі. В роботі досліджено динаміку виробництва сталі провідними країнами світу за останні п'ять років. Визначено причини зниження темпів розвитку металургійних підприємств України зокрема це застарілі технології, посилення конкуренції на ринку, зношеність основних засобів, недостатня кількість інвестицій у металургійну галузь, обмежений асортимент продукції. Розглянуто причини кризи світової металургії. Проаналізовано механізм регулювання наслідків кризи, консолідація металургійної галузі, яка відбувається згідно з загальними принципами глобалізації економіки світового поділу праці та передбачає зміну центрів зростання виробництва, перерозподіл природних і енергетичних ресурсів. Така тенденція чітко простежується у вітчизняній металургійній галузі, де рівень консолідації забезпечується трьома найбільшими українськими холдингами: група Метінвест, корпорація Індустріальний Союз Донбас, група Інтерпайп ВАТ «АрселорМіттал Кривий Ріг» (ВАТ «Криворіжсталь») тощо. Розмір наведених товаровиробників склав понад 70% внутрішнього ринку України. Наголошено, що пріоритетні чинники сприяють формуванню консолідації вітчизняних металургійних підприємств. Визначено, які фактори стримують розвиток металургійної галузі та запропоновані шляхи їх усунення.

**Ключові слова:** металургійна промисловість, продукція, конкурентоспроможність, консолідація, перспективи розвитку.

## АНАЛІЗ КОНКУРЕНТОСПОСОБНОСТІ ПРІДПРИЯТИЙ В МАСШТАБІ МЕТАЛУРГІЧЕСКОЙ ПРОМЫШЛЕННОСТИ УКРАИНЫ

Бугрим А.Ю., Колесник Э.А.

Статья посвящена исследованию современного состояния и тенденции развития отечественных металлургических предприятий Украины и мира. Металлургическая промышленность, играет существенную роль, и формирует обеспечение потребностей страны в черных и цветных металах. Реализовывая продукцию на экспорт, металлургическая промышленность в первую очередь выступает одним из главных поставщиков валюты. В статье рассмотрено мировое производство стали по данным ассоциации World Steel Association. На протяжении последних пяти лет, Украина входит в список наибольших стран в мире по производству металлургической продукции и занимает 13-е место (в 2018 году) среди топ-стран производителей стали. В работе исследована динамика производства стали лидирующими странами мира за последние пять лет. Определены причины снижения темпов развития металлургических предприятий Украины: устаревшие технологии, усиление конкуренции на рынке, износ основных средств, недостаточное количество инвестиций в металлургическую отрасль, небольшой ассортимент продукции. Рассмотрены причины кризиса мировой металлургии. Проанализировано механизм регулирования последствий кризиса, консолидация металлургической отрасли, которая происходит в соответствии с общими принципами глобализации экономики мирового разделения труда и предусматривает изменение центров роста производства, перераспределение природных и энергетических ресурсов. Такая тенденция четко наблюдается в отечественной металлургической отрасли, где уровень консолидации обеспечивается тремя крупнейшими украинскими холдингами: группа Метинвест, корпорация Индустиальный Союз Донбасс, группа Интерпайп, ПАТ «АрселорМиттал Кривой Рог» (ПАТ «Криворожсталь»). Масштаб перечисленных товаропроизводителей составил более 70% внутреннего рынка Украины. Выделено, что приоритетные факторы помогают формированию консолидации отечественных металлургических предприятий. Определено, какие факторы сдерживают развитие металлургической отрасли и предложены пути их устранения.

**Ключевые слова:** металлургическая промышленность, продукция, конкурентоспособность, консолидация, перспективы развития.

ANALYSIS OF COMPETITIVENESS OF ENTERPRISES IN THE SCALE OF THE METALLURGICAL INDUSTRY OF UKRAINE

Bugrim O. Yu., Kolesnik E. O. \*

Ukrainian State Chemical and Technological University, Dnipro, Ukraine

\* Classic Private University, Zaporozhye, Ukraine

\* email: eleonorakolesnik889@gmail.com

Kolesnik E.O. ORCID: <https://orcid.org/0000-0003-3586-1938>

*The article is devoted to the research of the current state and tendency of development trends of domestic metallurgical enterprises of Ukraine and the world. The metallurgical industry plays a significant role in shaping the country's needs in ferrous and non-ferrous metals. Selling products for export, the metallurgical industry is primarily one of the major suppliers of currency. The article reviews world steel production according to the World Steel Association. Over the past five years, Ukraine is in the list of the world's largest steelmaking producers, and occupies the 13th place (in 2018) among the top countries of steel producers. The paper examines the dynamics of steel production in the world's leading countries over the past five years. The reasons for the slowdown in the development of metallurgical enterprises of Ukraine were analyzed: outdated technologies, increased competition in the market, depreciation of fixed assets, insufficient investment in metallurgical sector, small assortment of products. Reasons of the crisis of world metallurgy are analyzed. The mechanism of regulating the consequences of the crisis, the consolidation metallurgical industry, which occurs according to general principles of globalization economy of world division of labor and provides a change in production growth centers, redistribution of natural and energy resources. This tendency is clearly traced in the domestic metallurgical sector, where the level of consolidation is ensured by three largest Ukrainian holdings: Metinvest Group, Industrial Union Donbass Corporation, Interpipe Group, OJSC Arcelormittal Kryvyi Rih (OJSC Kryvorizhstal). The size of these producers amounted to more than 70% of the domestic market of Ukraine. It is emphasized that the priority factors contribute to the formation of consolidation of domestic metallurgical enterprises. Determined which factors constrain the development of the metallurgical industry and the proposed ways of their elimination.*

**Keywords:** metallurgical industry, production, competitiveness, consolidation, development perspectives.

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