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Tkachenko A.M., Silenko S.A.

PROSPECTS FOR IRON AND STEEL INDUSTRY IN UKRAINE

Zaporizhzhia National Technical University, Zaporizhzhia, Ukraine

In 2014, the industry of our country fell into the deepest crisis. The situation was worsened by the military actions in Donetsk region and economic difficulties in our country. As there were no portfolio of orders, the steel production decreased considerably at the iron and steel works of our country on the whole and Metinvest Corporation in particular. Another problem of iron and steel industry in Ukraine was a significant slump of iron ore prices. The importance of developing the enterprises of iron and steel industry is predetermined by the fact that they play the key role in forming a stable development of the economy in particular and the state on the whole. The iron and steel enterprises of Ukraine face all the new challenges that are caused not only by the internal factors, but also by the global impact of the world production. They call for urgent managerial decisions and, above all, the study and understanding of both objective and subjective patterns of development of the iron and steel industry. Since iron and steel industry is one of the leading realms for filling in the state budget, monitoring of this realm is carried out on a regular basis by the State Department of Statistics of Ukraine. The Worldsteel Association, one of the most influential world agencies, also distinguishes Ukraine in the top 10 world leading manufacturers of this kind of produce. It is difficult to overview even one per cent of the researchers who have studied this issue. At the same time, because of the transience of objective circumstances on the market there appear new conditions for the existence of the industry on the whole and its iron and steel branch in particular. Therefore, constant monitoring of the market is an inalienable part of the economic strategy. The objective of the article is to study the iron and steel industry by the example of the Metinvest Group and determine the prospects for its further development. There has been an ousting of Ukrainian production out of a number of export markets (CIS countries and Asia) as a result of increased competition with major players and as a consequence of the import substitution policy introduced by some consumer countries. Against the background of reduction in the price of raw materials (IORM, coal) and energy, decrease in freight and rapid devaluation of national currencies relative to the US dollar, the cost of key competitors in steel and IORM continue to decline, and the market is becoming all the more global, as short logistics has ceased to be a significant advantage. Under these conditions, lower costs are a chance to maintain competitiveness. Therefore, the introduction of innovative ways of development is probably the only chance to save and possibly increase the production potential of this industry. It is necessary to provide support to the basic industries, the iron and steel one in particular, which is the foundation of the Ukrainian economy ensuring its stability and persistency. A national support program which implies substantial change in legislation should be introduced.

Keywords: crisis, competitiveness, innovation, cost, development.

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Rationale for the research

Nowadays approximately 60% of the general social product is manufactured in the industry where over 30% of the labour pool is involved. One of the key fields of our national economy is iron and steel

industry. One should mention that metallurgical complex combines technological processes of mining of raw products and preparation for processing, the technological process of production of cast iron, rolling of metals, production of alloys, by-product

coke manufacture, waste recycling, etc. The metallurgical complex of our country has quite favourable natural, geographic, and economic conditions for efficient growth and is the basis for the development of other branches of industry.

Statement of the problem

The importance of developing the enterprises of iron and steel industry is predetermined by the fact that they play the key role in forming a stable development of the economy in particular and the state on the whole. The metal enterprises of Ukraine face all the new challenges that are caused not only by the internal factors, but also by the global impact of the world production. They call for urgent managerial decisions and, above all, the study and understanding of both objective and subjective patterns of development of the iron and steel industry.

Analysis of the latest researches and publications

Since iron and steel industry is one of the leading realms for filling in the state budget, monitoring of this realm is carried out on a regular basis by the State Department of Statistics of Ukraine. The Worldsteel Association, one of the most influential world agencies, also distinguishes Ukraine in the top 10 world leading manufacturers of this kind of produce. It is difficult to overview even one per cent of the researchers who have studied this issue.

Identification of the unexplored aspects of the issue

At the same time, because of the transience of the objective circumstances on the market there appear new conditions for the existence of the industry on the whole and its iron and steel branch in particular. Therefore, constant monitoring of the market is an inalienable part of the economic strategy.

Research objective

The research of the peculiarities of the development of steel products market, its comparison with the world tendencies gives a clear idea of the prospects for the national metallurgical sector. Thus, the aim of the article is to research the state of the iron and steel industry by the example of the Metinvest Group and determine the prospects for its further development.

Summary

Metinvest Corporation is a complex of 29 enterprises which employ about 110 000 workers. The range of the products covers over 1000 items for more than 5000 consumers. Nowadays the company sells its products on almost 99 key markets to more than 1000 buyers in 75 countries of the world. In our country Metinvest Corporation is number one producer of iron ore (55%), coke (41%), steel (25%), and coking coal (21%). In 2014, the taxes from Metinvest in our country amounted to almost 10% of the budgets of various levels.

In 2014, the industry of our country fell into

the deepest crisis. The situation was worsened by the military actions in Donetsk region and economic difficulties in our country. Specifically, there is a disruption of the production rate at Azovstal, there is an inadequate loading of Krasnodonvuhillia (KDV), Khartsisk Pipe Works (KhTZ), Komsomolsk Rudoupravlinnia (KRU). As a result of anti-terrorist operation, the following enterprises are damaged: Avdiivka Coke-Chemical Works (AKKhZ), Yenakiiieve Metallurgical Works (YeMZ), KDW, Research and Development Complex “Inkor & Co.” (NVO Inkor & Co.). Yenakiiieve Metallurgical Works and Makiivka Branch of Yenakiiieve Metallurgical Works (MF YeMZ). According to the preliminary estimates, the restoration of Donetsk region will take more than \$ 12 bln. As there were no portfolio of orders, the iron and steel production decreased considerably at the iron and steel works of our country on the whole and Metinvest Corporation in particular.

The warehouses of MMKI, Azovstal, KDW, KRU and Ore Mining and Processing Enterprise (HZK) are overstocked. Specifically, there are

- 265 400 tons of coal at the mines of KDW;
- 41 000 tons of finished products in the

warehouses of MMKI;

- 277 100 and 154 900 tons are stocks of concentrate and pellets respectively.

Another problem of metallurgical industry in Ukraine is a significant reduction in ore price (in 2014 it accounted for 51.5%).

However, unfortunately, there has been no adequate state support for the metallurgical industry over this difficult period. Specifically, since the 1st quarter of 2014 there has been increase in the payment for mineral resources use by five times. At the Metinvest Group enterprises it has lead to the losses accounting for \$ 60 mln per year. Table shows the rent payment for subsoil use in some countries.

Rent payment for subsoil use in some countries of the world

Country	Rent payment (standard units/ton)
Ukraine	3.6
India	2
Australia	1.7
Kazakstan	1
Brazil	0.6
Russia	0.6

It looks as if they are trying to take the last thing the enterprises have. It seems that no efficient government should allow the increase in rent payment even in case of economic crisis. It should be mentioned that in 2014 gas tariffs in Ukraine rose by 67% (i.e. by 2.2 times), Ukrzaliznytsia increased

the transportation tariffs by 58% over that period and the government is going to introduce additional tax on import (approximately 5–10%). Moreover, in 2015 the Law took into effect in compliance with which the Social Insurance Fund totally gave up financial support of sanatorium-preventoriums and health resorts for children. For Metinvest Group it means additional expenses of about UAH 10 mln. Besides, the government has stopped timely reimbursement of VAT to metallurgical enterprises. At the same time, now the arrears of the taxing authorities in VAT to Metinvest corporation is over UAH 1 bln. The company pays its tax deductions to the budgets of all levels opportunely and fully. Advance tax payment to the state for the profit that Metinvest enterprises did not get in 2014 amounts to over UAH 2.5 bln. As a result, the innovative investment projects and programmes, and the development of social infrastructure, etc., are under threat. The existence of mining and smelting enterprises in Ukraine on the whole and of Metinvest in particular, which are mainly enterprises forming company towns, has become extremely hard.

It should be mentioned that in 2014 the volume of production in Ukraine fell back to the level of late 1990s, in 2015 the fall amounted to over 25%. According to the results of 2014, the volume of steel production in Ukraine fell by 17.1% to 27.2 mln tons, that of iron ore fell by 14.8% to 24.8 mln tons. This sharp slippage of metal production was related to the reduction of demand for metal on the domestic market against the background of aggravated economic situation in the country and the military conflict in Donbas. Moreover, despite the devaluation of hryvnia that was a kind of support for domestic producers in export sales, there has been an ousting of Ukrainian production out of a number of export markets (CIS countries and Asia) as a result of increased competition with major players and as a consequence of the import substitution policy introduced by some consumer countries. Against the background of reduction in the price of raw materials (IORM, coal) and energy, decrease of freight and rapid devaluation of national currencies relative to the US dollar, the cost of key competitors in steel and IORM continue to decline, and the market is becoming all the more global, as short logistics has ceased to be a significant advantage.

In 2015 the slump in volume of iron ore and steel production in Ukraine amounted to over 30% in comparison to 2014. Nowadays the Ukrainian export of steel products has reached its lowest over the past 10 years. According to the results of 2014, the export of rolled iron fell by 15% and amounted to approximately 20 mln tons, which is the minimum volume over the past 10 years. The lowest performance is evidenced at the enterprises in the

East of Ukraine. They are Alchevsk MK (–34%), Yenakiieve MZ (–28%), Makiivka subsidiary of YeMZ (–33%). At the same time, the commodity composition of export has remained almost unchanged. The bulk is, as it used to be, comprised of semi-finished products. The most significant reduction is in delivery to the Russian Federation. It should be noted that the geography of export has not been changed a lot either. The key sales market for the Ukrainian products are still the Middle East and South African countries. In their significance, the CIS countries have moved from the second to the third place. On the whole, the annual shipping in this direction has dropped by more than one third. Out of this, the deliveries to Russia have amounted to 2 mln tons, which is by 34% lower than in the previous year. More than half of this volume is armature and structural shapes. Under such conditions reduction in expenses is a chance to retain competitiveness. When there is a fall in price of steel products, the enterprises of Metinvest are working to maintain the competitiveness of their produce. This is achieved by implementing some measures to reduce working expenses and decrease the cost of the products.

In 2014 at Metinvest enterprises there were 54 000 suggestions made for reducing the expenses. That year the economic effect after implementing initiatives regarding the system of collaborative sales amounted to UAH 196 mln. Besides, in 2014 at the metallurgical enterprises of Metinvest there were 44 new grades of steel introduced into production. Moreover, at Metinvest enterprises there is a lot of work carried out to enhance the quality of products. Thus, at Zaporizhstal the manufacture of inadequate products has been decreased by 2.3 times, while at KhTZ not a pipe was rejected in 2014. These measures made it possible to lower the cost of produce from 81% to 78% in comparison to 2013.

Nowadays the steel market in Ukraine is having difficulties. The renewal of the world economy is taking place slowly, in the nearest years the growth by 0.5–1.5% may become standard. Aggravating factors for many regions of our country are geopolitical conflicts, low price of oil, and weak investment activity. The consumption of metal-roll has also been slowing down the rate of growth: the damping effect was fomented by China when in 2014, for the first time after 1995, it decreased the consumption of the steel products, both imported and of domestic manufacture. Such changes lead to the question that the majority of producers faced – to whom and how to sell the volume which was left taking into account the increased competition with Chinese suppliers on almost all markets.

According to the forecasts of WSA, in 2016 there will be an increase in consumption of rolled

iron by 1.4%, which makes approximately 1.57 bln tons. China is ceasing to be the driving force of the world consumption of steel. The demand for rolled iron in China will keep negative dynamics and in 2016–2017 it will decrease annually by 0.5%. In 2016 the increase will remain the same in developed countries, but it will be moderate. On the whole, the demand for rolled iron in developed countries will grow by 1.8% up to 420 mln tons in 2016. In developing countries, including China, in 2016 the rates of growth of rolled iron consumption will still be weak on the whole, reaching about 2.4%. As a result, the demand for steel in developing countries in 2016 may grow by 4%, exceeding 440 mln tons. In 2016 in Ukraine due to the renewal of infrastructure they expect increased indicators of rolled iron consumption by 14%.

The production of steel in Ukraine has somewhat stabilized in comparison to January, 2016 (Fig. 1).

Over the recent years internal dispatches of IORM in Ukraine have fallen which forced the manufacturers to decrease the production and increase the export of free volumes. Since

privatization, the enterprises of Ukrudprom have managed to significantly increase the volume of IORM production due to active investment of the owners into the expansion of capacities. In 2016, in comparison to 2003, the IORM production on the whole grew by 32%, including the increase of production of saleable concentrate by 44%, and that of pellets by 46%. In 2016 the loading of the capacities of iron-ore works was cut because the volume of dispatches to the domestic market fell (by 5.7 mln tons or 14%). In spite of the fact that IORM dispatches to the domestic market fell and there was a significant surplus of raw materials in Ukraine, the import of raw materials (from Russia) rapidly grew over the past four years. There was an increase by 87% in 2016 in comparison to 2013. While steel production in Ukraine after the crisis fell, production of saleable IORM grew by 28% providing stable currency return into the country even in crisis. As a result of fall in domestic consumption of IORM, there is a considerable growth of IORM export (+85% in 2016 in comparison to 2010). The volume of IORM shipping to Europe is almost unchanged (+14%), while the

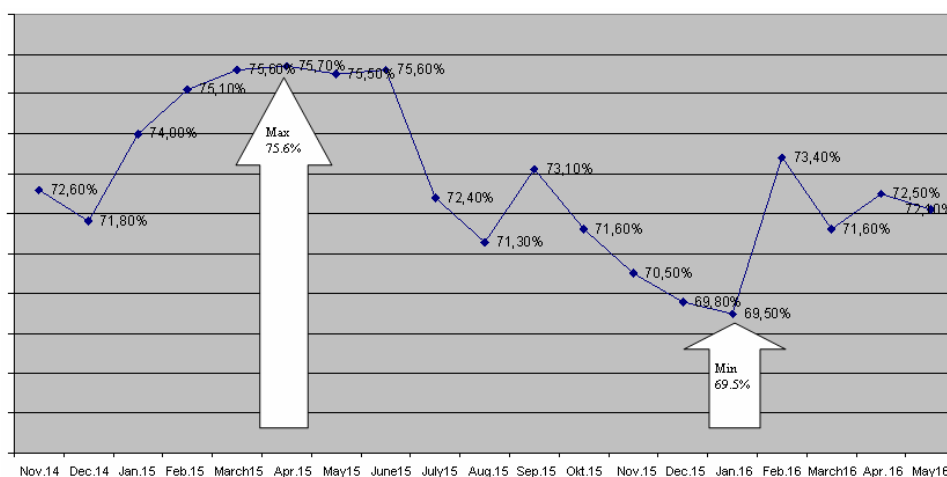


Fig. 1. Dynamics of average daily steel production at the enterprises of ferrous metallurgy in 2012–2016

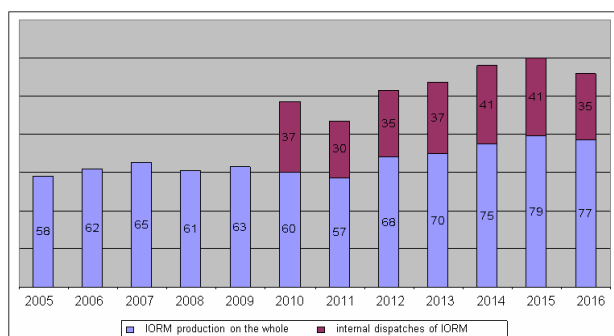


Fig. 2. Dynamics of production and shipping of IORM in Ukraine. Source:Ukrpromzovnisheksperyta. *IORM content of sintering ore, concentrate, without regard for agglomerate, lumpy and open-hearth ore

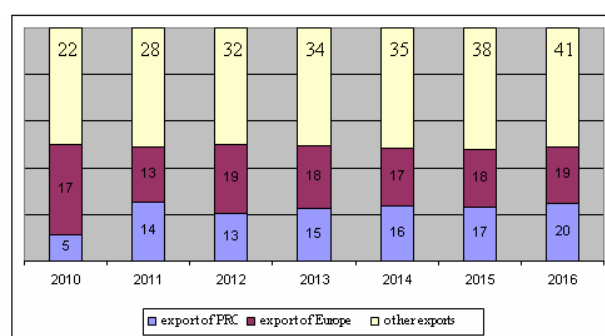


Fig. 3. Dynamics of IORM export out of Ukraine



Fig. 4. Dynamics of IORM production in the world

most distant market (China) showed 4-time growth reaching 49.4% of all IORM prepared to be exported (Fig. 2, Fig. 3).

One should note that mining enterprises from Australia and Brazil are conducting an aggressive policy of increasing the IORM production volume and shipment to the Chinese and other markets where they compete with Ukrainian producers (Fig. 4,5).

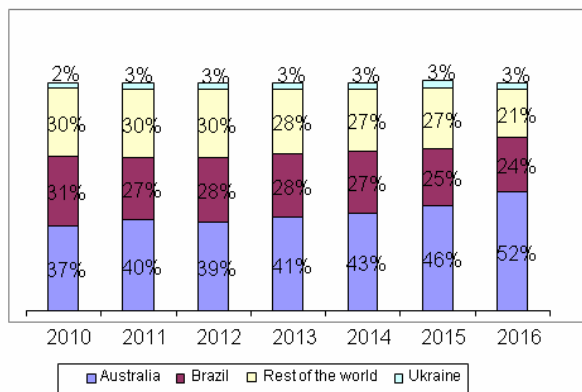


Fig. 5. Shares of the countries in the world trade (export) of IORM

Fig. 6 shows consolidated expenses of the Ukrainian iron-ore works to China.

It should be observed that the price of IORM in China has fallen by 2.5 times since January 2014, and it will stay at the current level, the payment for the subsoil in Ukraine has risen and does not depend on the level of the selling prices.

According to the international practice and market conditions, the prices of the Platts agency are used most often as an indicative when deals are made and the terms of sales are compared taking into account individual terms of each specific deal (volume of production, quality, state of the market, broker's requirements, etc.)

– IODEX 62% Fe CFR North China, \$/dtm.

is the price of the iron-ore concentrate shipped to the port on the northern coast of China in dry weight (average moisture content in the concentrate at the mining and processing plants of Metinvest Group is 10%, that is why in order to calculate the comparable price, the price of Platts index is reduced by 0.9 coefficient);

– IORM price fell by 2.5 times from January 2014 to April 2016;

– in a short-term perspective, the analysts do not forecast any price surge in China compared to the current levels;

– the payment for the subsoil within the same period (without taking into account the innovations in the Law of Ukraine №211-VII) has risen by 3.5–4.0 times in US dollars and by more than 7 times in national currency.

One should note that tax load of the IORM rent in Ukraine is now higher in comparison to Kazakhstan by 3.5 times and to Russia by 5.7 times.

– open-cast iron-ore products in Ukraine require significant expenses to be brought to minimum consumable condition:

– to extract raw materials with 35% of average content of aggregate Fe (less than 30% of magnetite one, in some deposits there is less than 20% of magnetite Fe);

– Fe, which the consumer needs, makes more than 60%;

– key competitors of Ukraine (analogous raw materials and conditions of mining) are Russia and Kazakhstan;

– current indicators of payment for the subsoil in Ukraine are much higher than those of the competitors, which opens the door for the import of Russian IORM in Ukraine;

– the advantage of Kazakhstan in rent payment is by 3.5 times and that of Russia is by 5.7 times.

The leading investment banks adjust their

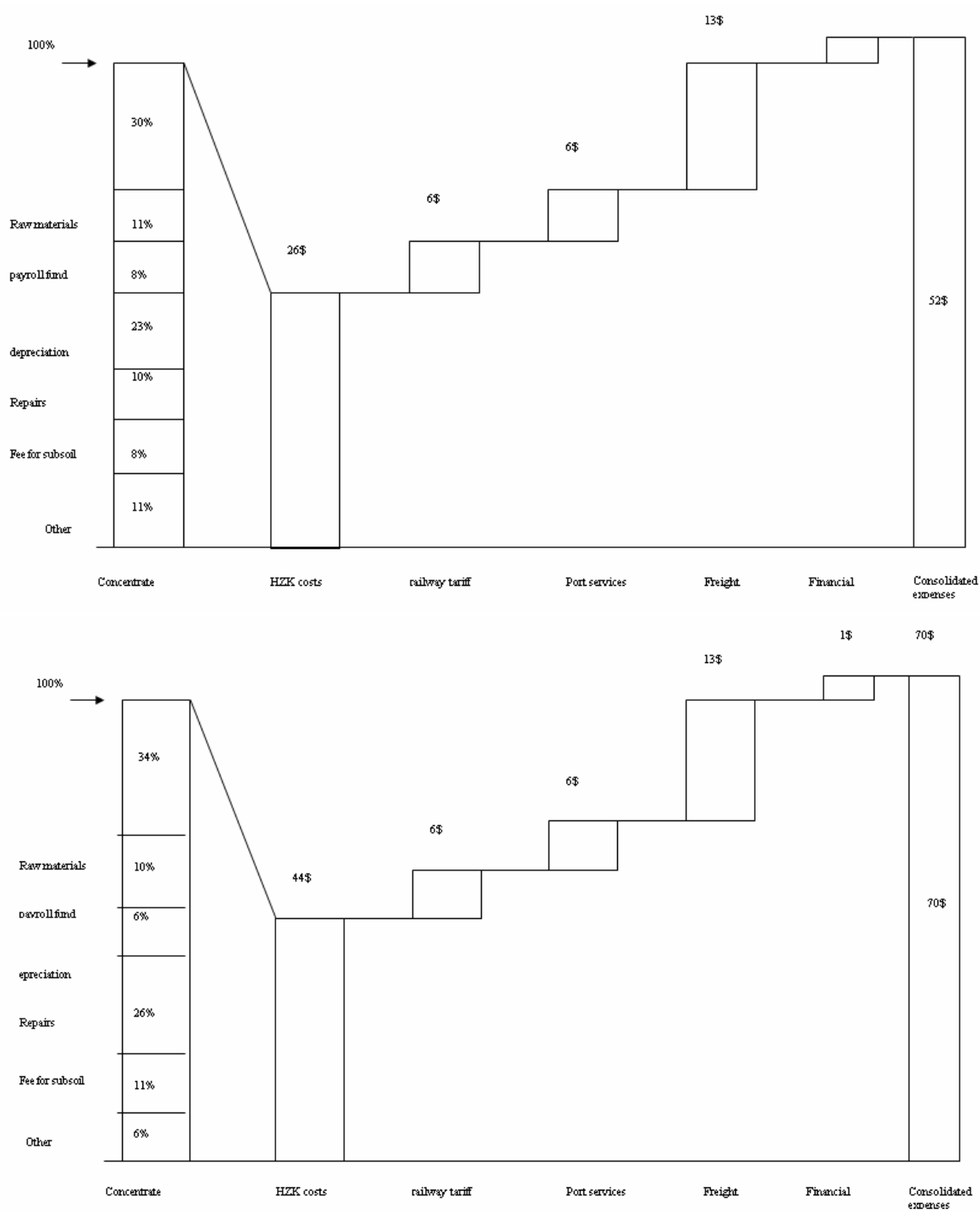
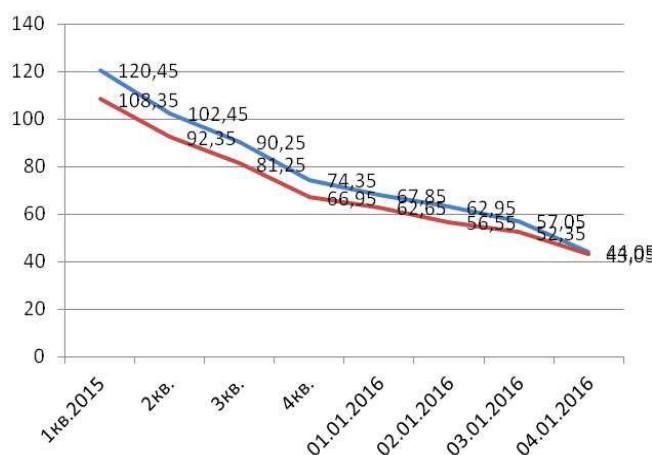


Fig. 6. Consolidated expenses of the Ukrainian iron-ore works to China.



— IODEX 62% Fe CFR North China \$/ dmt; ____ IORM price for ore mining and processing enterprises is equivalent to Platts index taking into account moisture content; * average price in April 2015 (as calculated on 09 April, 2015)

Fig. 7. Dynamics of the volume of iron ore production in the world

IORM price forecasts lower than \$60/t in 2016 and up to \$50–75/t in a mid-term period (3–5 years). There is a risk that prices will fall to \$30–40/t, which will mean total absence of competitive power of the Ukrainian IORM in China (Fig. 7–9).

Conclusions

It is necessary to provide support to the basic industries, the iron and steel one in particular, which is the foundation of the Ukrainian economy ensuring its stability and persistency. A national support program which implies substantial change in legislation should be introduced.

REFERENCES

1. State Statistics Service of Ukraine. – [Electronic resource]. – Access mode : <http://www.ukrstat.gov.ua/>
2. Worldsteel Association. – [Electronic resource]. – Access mode : <https://www.worldsteel.org/>
3. Tkachenko A.M., Dmyrenko O.P. The restructuring of the metallurgical industry on the basis of innovations introduction: the explanation of suitability // Visnyk: Naukovyi Zhurnal Khmelnytskyi Natsionalnyi universitet, Ekonomichni nauky. – 2011. – № 4. – Vol. 4. – P.109-111.

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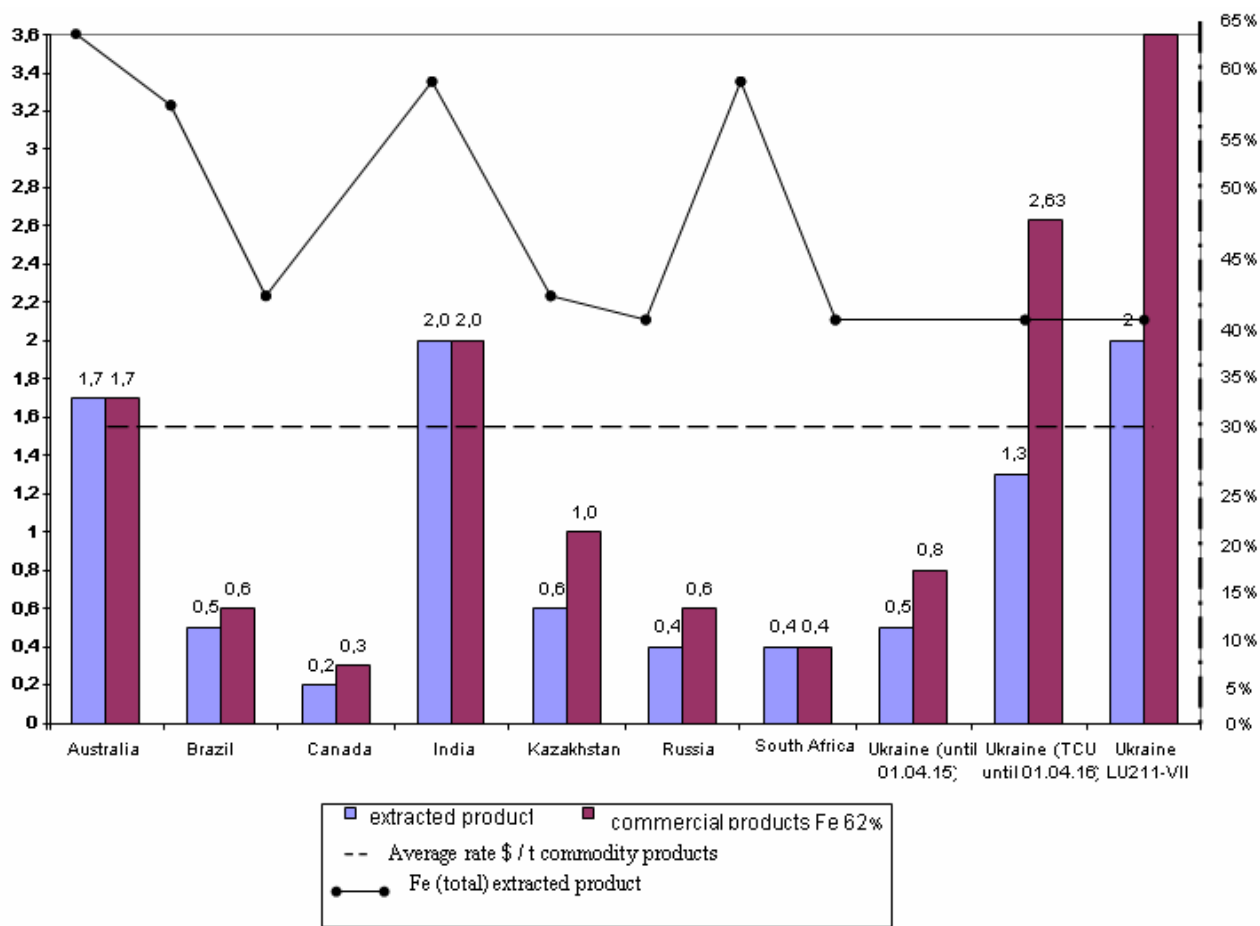


Fig. 8. Key indicators of Fe 62% production in Ukraine and the world

* tax indicator of 3,6 \$/t according to the given rate in the fourth quarter of 2014, and 3,1 \$/t according to the actual rate of the first quarter and data of the preliminary declaration

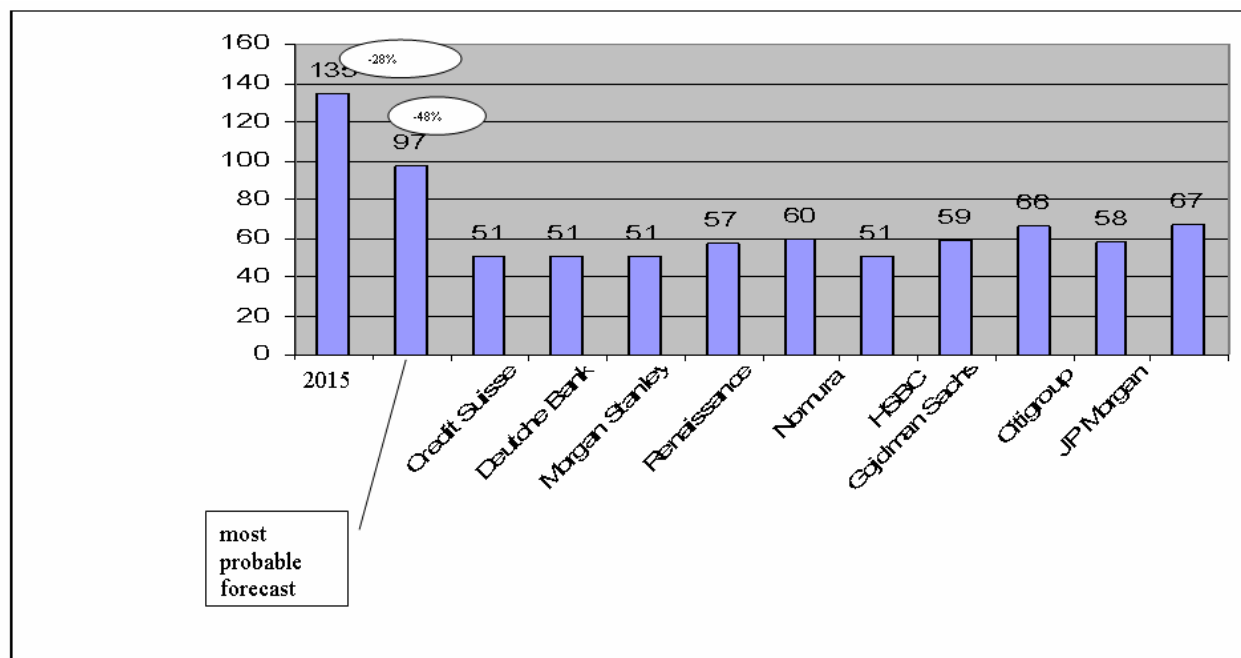


Fig. 9. Average annual Platts index is 62%, CIF China \$/t

ПЕРСПЕКТИВИ РОЗВИТКУ МЕТАЛУРГІЙНОЇ ГАЛУЗІ УКРАЇНИ

Ткаченко А.М., Силенко С.А.

У статті досліджено сучасний стан і перспективи розвитку металургійної галузі України. Метою статті є дослідження стану металургійної промисловості на прикладі групи компанії «Метінвест» та визначення перспектив її подальшого розвитку. У 2014 році промисловість нашої держави увійшла в глибоку кризу. Стан погіршило проведення бойових дій в Донецькому регіоні та економічні складнощі в нашій країні. Внаслідок відсутності портфеля замовлень на металургійних підприємствах нашої країни в цілому та зокрема у Корпорації Метінвест суттєво знизилося виготовлення металопродукції. Ще однією проблемою металургійної галузі України стало значне падіння цін на руду. Спостерігалось витіснення української продукції з низки експортних ринків (країн СНД та Азії) в результаті посилення конкуренції з боку великих гравців і здійсненою окремими країнами-споживачами політики імпортозаміщення. На фоні здешевлення сировини (ЖРС, вугілля) й енергетичних ресурсів, зниження фрахту та стрімкої девальвації національного валюту відносно долара США, собівартість ключових конкурентів зі сталі та ЖРС продовжують знижуватись, а ринок стає все більш глобальним, так як коротка логістика перестала бути вагомою перевагою. За таких умов зниження витрат — шанс зберегти конкурентоспроможність. Тому впровадження інноваційних шляхів розвитку стає чи не єдиним шансом для збереження та можливого збільшення виробничого потенціалу галузі.

Ключові слова: криза, конкурентоспроможність, інновації, витрати, розвиток.

ПЕРСПЕКТИВЫ РАЗВИТИЯ МЕТАЛЛУРГИЧЕСКОЙ ОТРАСЛИ УКРАИНЫ

Ткаченко А.М., Силенко С.А.

В статье исследовано современное состояние и перспективы развития металлургической отрасли Украины. Целью статьи является исследование состояния металлургической промышленности на примере группы компаний «Метинвест» и определение перспектив дальнейшего развития. В 2014 году промышленность нашего государства вошла в ров кризиса. Состояние ухудшилось проведения боевых действий в Донецком регионе и экономические сложности в нашей стране. Вследствие отсутствия портфеля заказов на металлургических предприятиях нашей страны в целом и в частности в Корпорации Метинвест существенно снизилось изготовления металлопродукции. Еще одной проблемой металлургической отрасли Украины стало значительное падение цен на руду. Наблюдалось вытеснение украинской продукции с ряда экспортных рынков (стран СНГ и Азии) в результате усиления конкуренции со стороны крупных игроков и проведенной отдельными странами-потребителями политики импортозамещения. На фоне удешевления сырья (ЖРС, уголь) и энергетических ресурсов, снижения фрахта и стремительной девальвации национальных валют к доллару США, себестоимость ключевых конкурентов по стали и ЖРС продолжают снижаться, а рынок становится все более глобальным, так как короткая логистика перестала быть весомым преимуществом. При таких условиях снижение затрат — шанс сохранить конкурентоспособность. Поэтому внедрение инновационных путей развития становится едва ли не единственным шансом для сохранения и возможного увеличения производственного потенциала отрасли.

Ключевые слова: кризис, конкурентоспособность, инновации, расходы, развитие.

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Tkachenko A.M., Silenko S.A.

Zaporizhzhia National Technical University, Zaporizhzhia, Ukraine

* e-mail: alla0676128584@gmail.com

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REFERENCES

1. Derzhavna sluzhba statystyky Ukrainy [State Statistics Service of Ukraine]. — Electronic resource. — Access mode : <http://www.ukrstat.gov.ua/> [in Ukrainian]
2. Worldsteel Association. — Electronic resource. — Access mode : <https://www.worldsteel.org/> [in English]
3. Tkachenko A.M., Dmyrenko O.P (2011) Obgruntuvannya dotsilnosti perebudovy metalurhiynoi haluzi na osnovi vprovadzhennia innovatsiy [The restructuring of the metallurgical industry on the basis of innovations introduction: the explanation of suitability]. *Visnyk: Naukovyi Zhurnal Khmelnytskyi Natsionalnyi universitet, Ekonomichni nauky.* №4. V. 4, 109-111 [in Ukrainian].