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## CHARACTERISTIC OF IRON AND STEEL INDUSTRY IN TERMS OF MEMBERSHIP IN THE EUROPEAN UNION

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This article presents an attempt to analyze the impact of global conditions on the functionality of the steel industry country – member of the European Union. The paper presents data describing trends and phenomena occurring in the global steel industry, and selected economic indicators describing the economic situation, which allowed the comparison of local changes with the trends disclosed in European and global scale.

*Keywords:* steelwork production, European Union, market analysis

### INTRODUCTION

Since the 1<sup>st</sup> of May 2004 Poland has become a full member of the European Union. Among the greatest benefits gained by Poland thanks to its EU membership, the most often mentioned ones include the participation in making economic and political decisions on the European level and the transfer of financial resources that have already netted over 100 billion Euros of non-repayable aid. It is estimated that the EU support of investments has contributed to an increase in GNP (Gross National Product) by over one percentage point in recent years. [1]

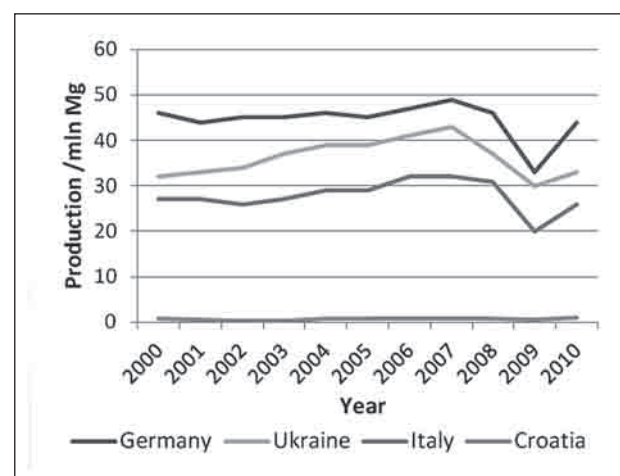
Aside from creating chances for development, the integration has also involve a number of challenges. In employers' view, the most important of them include a higher competition in the domestic market, the outflow of skilled workers abroad and the need for adjusting companies to the EU quality requirements. Another impediment is the delay in introducing the euro (the obligation under the Accession Treaty) that hampers the inflow of direct investments due to the risk associated with the exchange rate. The ongoing global crisis will probably further delay this process [2].

The economic crisis has significantly affected the volume of production of metallurgical companies across Europe. From the data presented in Figure 1, a considerable reduction in the number of tons of steel can be observed in leading steel manufacturers in Europe. Since 1010, however, a growing trend has been noted.

A similar phenomenon can also be observed in the Polish metallurgy (Figure 2). First, a distinct change has occurred in the manufacturing structure, within which a significant increase in the role of the electric process can be clearly seen. Secondly, the level of explicit steel

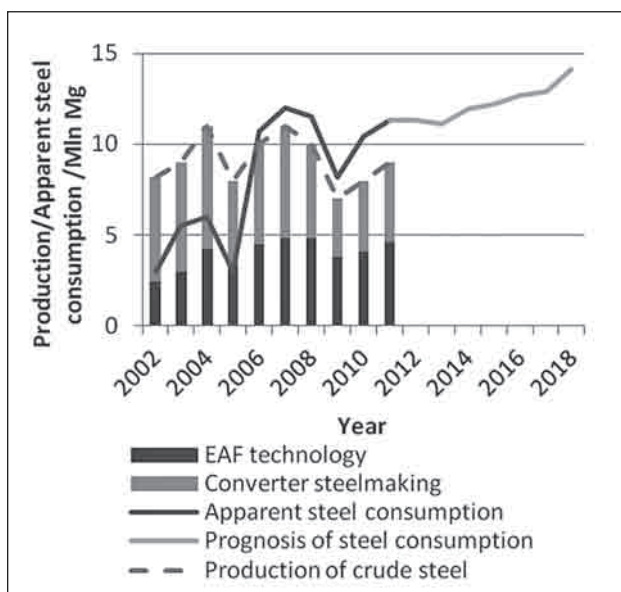
consumption has increased, which, unfortunately, has been reflected in a worsening of the indicator describing the import to export relationship, not only in the product line dimension, but also in the economic one (the export includes low-processed products, whereas the import concerns largely highly processed products).

An element indicating good prospects in the steel industry are also changes in the value of the SWIP (Steel Weighted Industrial Production) index that relates the level of production activity in sectors consuming steel products to the domestic steel consumption. In 2011, the SWIP index increased by nearly 15 % (the highest value since 2007). From this perspective, the changes in the power engineering and in the railway are gaining strategic importance, which, as a result of the increased demand for specialized products and structures may significantly contribute to an increase in demand for steel products. Of key importance to the shaping of the size of demand in the Polish market is also the household appliance industry.



**Figure 1** Changes in the volume of steel production in selected European countries in the years 2000 – 2011 [3]

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**Figure 2** Changes in the steel production volume and the explicit consumption of steel products in the years 2002-2011 together with a forecast up to 2018 [4]

### THE INFLUENCE OF THE EUROPEAN ENVIRONMENTAL PACKAGES ON THE CAPABILITY TO CONDUCT ACTIVITY IN A METALLURGICAL ENTERPRISE

A real threat for the metallurgical industry are the increasingly high environmental protection requirements. An energy and climatic package was negotiated in the European Parliament in 2008, which is to come into force from 2013. In the Commission's view, the EU economy may cost effectively reduce CO<sub>2</sub> emissions by 20 % by 2020. The current proposals (vetoed by Poland) establish a roadmap for CO<sub>2</sub> reduction by 2050 by as much as 80 % (relative to the year 1990) [5].

Steel manufacturers point out to the fact, however, that the EU is only responsible for 11 % of the world's CO<sub>2</sub> emissions, and therefore any, even the most restrictive actions implemented solely in Europe will not bring about a measurable environmental effect [6, 7].

Since the beginning of the 90's, the Polish metallurgical industry has reduced the CO<sub>2</sub> emission volume by over 60 %, chiefly thanks to the application of modern technology, and currently it is the source of only 4 % of the overall carbon dioxide emissions. Further limiting is extremely capital intensive and is only possible to a limited extent and, as is estimated based on benchmarks and the KE methodology, the shortage of allowances for this sector of industry will amount to about 12 percent (the cost of one ton of CO<sub>2</sub> to amount to 14,5 Euros in the years 2013-14 and 20 Euros in the period 2015-20 [2]).

The climatic package is applicable to the entire economy, and the metallurgical industry is only one of the sectors whom the State allocates the allowances. In the conditions of the Polish economy, the main beneficiary of the imposed limits is the power industry. Relying as much as in 94 % on coal [7], this branch of industry

will particularly acutely feel the necessity of adjusting itself to the EU requirements. Electricity has increased in price in Poland, and this process is likely to continue over the next decade (it is estimated that the price will have risen by 60% by 2020) [2].

So, the CO<sub>2</sub> emission reduction process will not remain without effect on the future of the Polish and the European metallurgical industries – both directly, through the purchases of allowances by steel mills, and indirectly, through the additional emission allowance cost included in the prices of purchased primary raw materials (chiefly coke) and electrical energy (the electrical energy costs account for 20 % of the product price). These facts and the Community Directive introducing the excise duty on coal and gas (that previously were not burdened with this levy), which has been in force since 2012, may all have a significant effect on the profitability and price competitiveness of steel manufacturers. It is estimated that the implementation of the energy and climatic package will lower the competitiveness of the Polish metallurgical industry by approx. 25 % by 2025 [8, 9].

The European Commission's policy, which is geared towards promoting Europe to become the world's leader in the struggle with the emissions of gases, might result in a situation where EU-located steel mills will lose their competition for orders with manufacturers from, e.g., the countries of the BRIC (Brasilia, Russia, India, China) group. The above-mentioned countries are covered by the environmental restrictions to a lesser extent or these are not applicable to them at all; in addition, they enjoy lower labour costs and have state-of-the-art technological lines available. International concerns (such as ArcelorMittal, Celsa, CMC – The Commercial Metals Company, or ISD - The Industrial Society of Donbas) are not attached to any particular country and are guided by profit. Thus, steel production can be translocated to other places; on the other hand, however, the transport costs must be taken into account, which has ultimately translated into the end prices with all associated consequences for the purchasers.

It should also be noted that the purchase cost of CO<sub>2</sub> emission allowances is not the only element differentiating the steel production costs between EU countries and the rest of the world. Because of the lack of significant local raw-material sources or the high labour costs, European steel manufacturers already in the past had to try hard (e.g. by investing in the improvement of production effectiveness, improvement of product quality, or specialization) to remain competitive to, e.g., Far East manufacturers. Outlays that have been made and are still being made (since 2004, ArcelorMittal has invested in Poland about 1,3 billion Euros [2]) and the increasing pressure by steel concerns (e.g. the European Confederation of Iron and Steel Industries) will contribute to discerning the problems of this sector or, for instance, assuring that Russia, which has recently accessed the World Trade Organization (2011), be subject to the same rules [2].

## TRENDS IN THE DEVELOPMENT OF THE METALLURGICAL SECTOR

The metallurgical sector in the EU is dominated by large international concerns that concentrate over 60 % of production. In Poland, six investors are active in the metallurgical industry, whose market shares are as follows: ArcelorMittal – 67 %, CMC – 13 %, Celsa – 8 %, ISD – 7 % and Żłomrex – 4 % [10]. The present market structure has formed as a result of restructuring and privatization processes going on since 1990.

These activities manifest themselves in vertical and horizontal consolidation. The growing raw-material prices make more and more companies become interested in assuring constant supplies of raw materials to meet a possible future increase in demand. In the iron ore market, 75 % of the world's resources are controlled by three concerns (BHP Billiton, Vale, Rio Tinto), so it's no wonder that manufacturers, such as ArcelorMittal, intend to attain by 2016 a state in which 75 % of the iron ores used within the group would originate from their own resources (e.g. the Krivoy Rog ore deposits) [2]. Similar trends occur in the scrap market (in Europe, about 65 % steel mills used scrap for steel production), coal (coke), or distribution. In Poland, ArcelorMittal Poland has long maintained the intention to participate in the privatization of the Polish mining industry.

A revival can also be observed in the area of distribution. On the one hand, foreign concerns active in the Polish market use their own distribution channels, and, on the other hand, they more and more extensively enter areas previously occupied by local distributors. In contrast to the European distribution model being concentrated and dominated by enterprises associated with steel mills, there are several hundred distribution companies active in the Polish market (with annual sales from 10 K Mg to 150 K Mg). By purchasing Żłomeks from the Cognor Group, ArcelorMittal has become recently one of the main market players. On a slightly smaller scale, consolidation phenomena are also occurring in the building reinforcement manufacture area or in the tube industry [2].

An important issue in the Polish metallurgical industry was for years an excessive employment level which reached 153 thousand people in 1989. A particular problem was an inefficient employment structure manifesting itself in overstaffing on non-production work posts. The reduction of employment took place predominantly based on non-competence criteria, by focusing primarily on the age aspects (early retirements, social packages). As a result, the basic goal was successfully achieved by reducing the number of employees to a level of about 27 thousand people; however, a situation was brought about at the same time, in which employees with high skills and great professional experience departed from the steel mills. A distinct effect of the employment level reduction was an increase in productivity from 92,5 K Mg per employee in 1990 to 314 K

Mg per employee in 2010. So, it is rather the quality aspect and the generation gap that are currently a human resource issue for metallurgical enterprises. Nearly 40 % of people employed in the metallurgical industry are at the age of 41 – 50 years, and about 30 %, 51 – 60 years. Considering the fact that the share of persons at the age below 30 years does not exceed 70 %, it is necessary to undertake intensive actions aimed at preventing the occurrence of a competence gap (part of the enterprises have already taken such actions). This problem is urgent, inasmuch as, according to forecasts, the average age of a worker employed in Poland's industry in 2050 will be 50 years. Positive changes can also be perceived in the area of education structure, in which persons with higher and secondary education (with a share of 12 % and 76 %, respectively) play an increasingly important role [4, 10].

The prerequisite for the development of the metallurgical industry are therefore further investments and innovations which enable a more processed production and allow purchasers to be provided with special products (e.g. highly processed ones or those with unique parameters). Investments, the development of modern technologies or cooperation with research institutions are not subsidized in any way.

The metallurgical industry has been treated so far differently from other branches of the economy, as it would use public aid for restructuring. The process of adjusting the steel industry to the EU requirements (Protocol no. 8 of the Treaty of Accession of Poland to the EU) has been formally completed, therefore there are no longer any reasons for which this sector could apply for EU resources on general principles – e.g. for funds intended for ecological, innovative or research & development projects. In spite of the fact that the metallurgical industry is today deprived of this possibility, a number of initiatives can be observed, which aim at maintaining the cooperation between industry and science. Scientific centres continue conducting research work related to this area [11,12].

The current market situation and the UE Directives carry a lot of risk to the future activity of steel mills. First of all, it is necessary to point out to the increasing threat on the part of Chinese manufacturers and EU environmental regulations that reduce the CO<sub>2</sub> emission limits. From the items of a local nature, the greatest threats result from the collapse of the shipbuilding industry, the growing prices of utilities and raw materials, and the unstable exchange rate of the Polish currency. Regardless of the still severe crisis, a number of chances for the metallurgical industry can be indicated. The first one results from the obvious fact of lack of subsidies for steel, and steel products are indispensable for carrying out a number of tasks. Moreover, the Polish economy and infrastructure require many investment activities, within which steel products will play a substantial role. In addition, forecasts indicate good outlooks for the entire economy and a stable development path for the whole industry.

## SUMMARY

In Polish metallurgical industry privatization and organizational and technological restructuring proceeded in parallel with the processes of adjusting the sector to the EU accession requirements. The production capacities have been permanently reduced, the employment has been curtailed, and the majority of steel mills have become part of transnational concerns. On the one hand, these changes have reinforced Poland's presence in the international metallurgical market, but, on the other hand, the EU membership of Poland and the worldwide globalization processes stifle the local perception of the steel market needs.

Each European Union member acting on the single market seeks to maintain and make use of his own circumstances. The Community legal regulations may not, therefore, exclude those industry sectors that are important to a given country. This fact gains particular importance to new member and those, who have not attained yet the development level of the old EU members. An example can be the Polish economy that traditionally relies on mineable resources, including primarily coal, whose rapid adjustment to, for instance, ecological re-

quirements of the EU would significantly slow down or even inhibit its growth.

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**Note:** The professional translator for English language is C. Grochowina, Studio – Tekst, Poland