

МАУП, 2007. – 224 с. 8. Красносільська А. Гроші громадянського суспільства [Електронний ресурс]. – Режим доступу: <http://www.usipr.kiev.ua/publications/groshi-gromadianskogo-suspilstva>. 9. Матеріали Державного комітету статистики [Електронний ресурс]. – Режим доступу: <http://www.ukrstat.gov.ua/>. 10. Про громадські об'єднання: Закон України від 22.03.2012 № 4572-VI [Електронний ресурс]. – Режим доступу: <http://zakon2.rada.gov.ua/laws/show/4572-17>. 11. Про Статус і соціальний захист громадян, які постраждали внаслідок Чорнобильської катастрофи: Закон України від 28.02.1991 № 796-XII [Електронний ресурс]. – Режим доступу: <http://zakon3.rada.gov.ua/laws/show/796-12>. 12. Про фізичні культуру та спорт: Закон України від 24.12.1993 № 3808-XII [Електронний ресурс]. – Режим доступу: <http://zakon2.rada.gov.ua/laws/show/3808-12>

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М. Турек, І. Йонек-Ковальська  
Сілезький технологічний університет

## ОЦІНЮВАННЯ МІЖНАРОДНОЇ КОНКУРЕНЦІЇ НА РИНКУ ГІРНИЧО-ВИДОБУВНОГО ОБЛАДНАННЯ

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Сьогодні завдяки посиленню інтернаціоналізації виробники гірничо-видобувного обладнання вимушені шукати нові ринки збуту. Тому метою статті є оцінювання міжнародної конкуренції на ринку гірничо-видобувного обладнання. Для досягнення зазначеної мети подано характеристики польського та світового секторів ринку гірничо-видобувного обладнання, наведено оцінювання польських та світових конкурентів із використанням інструментарію СВOT-аналізу.

**Ключові терміни:** ринок гірничо-видобувного обладнання, оцінювання конкуренції.

М. Turek, I. Jonek-Kowalska  
Silesian University of Technology

## ASSESSMENT OF INTERNATIONAL COMPETITION ON THE MARKET OF MINING MACHINES AND APPLIANCES

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Currently the producers of mining machines and appliances are forced to search for new sales markets due to intensification of internationalization. Therefore, the objective of the hereby article is to assess the international competition on the market of mining machines and appliances. In order to achieve the objective stated in such way, in the article there was characteristics of the Polish and world sector of mining machines and appliances presented. In the article, using SWOT analysis, there was an assessment made of Polish and world competitors.

**Key words:** industry of mining machines and appliances, competition assessment

**Problem statement.** In the area of common globalization [1], internationalization [2–4] of activity is a task that many domestic enterprises have to face. Nevertheless, it is a very difficult task considering the differentiation of international markets [5] and activity of global corporations [6–8], the network [9] of which has a worldwide character. The Polish industry of machines and appliances is also affected by the

internationalization intensification. On the domestic market, as a result of significant fall of hard coal excavation, the possibilities of sales increase have been exploited.

**Analysis of the recent research and publications, and the article objectives.** Taking the circumstances above into account, the main purpose of the hereby article is to assess the international competition on the market of mining machines and appliances, conducted in the context of current situation of the Polish industry of producers of mining machines and appliances. In order to conduct the assessment, in the article there was a financial ratio analysis adopted using profitability ratios and pace of sales revenues increase in the examined enterprises. There was also a descriptive analysis used for the characteristics of the examined enterprises. A holistic assessment of the domestic and international producers of mining machines and appliances was made with the help of SWOT analysis.

SWOT Analysis (*S – strengths, W – weaknesses, O – opportunities, T – threats*) is a tool of strategic management, used for enterprise characterization and its environment. It allows to identify the weak and strong sides embedded in a particular organization as well as opportunities and threats generated by the environment. It constitutes a starting point for the determination of strategy of enterprise's further activity [10–12].

SWOT Analysis, depending on its results, directs the enterprise to a selection of one of four possible strategies: aggressive, conservative, competitive or defensive. An aggressive strategy is accessible for those enterprises (industries) in which there is a domination of strengths reinforced by opportunities embedded in the environment. Such subjects gain an unrepeatable chance for intensive development. A conservative strategy occurs in case of domination of forces strongly correlated with threats inherited in the environment. At that time the enterprise (industry) may survive by limiting threats with internal strengths. However, there are no considerable opportunities for intensive development. In a competitive strategy the weaknesses dominate over strengths but the environment is in favor of enterprise's development thanks to generating a considerable number of opportunities. Then the enterprise should concentrate on defeating the weaknesses so that the external opportunities may be used better. In such situation the enterprise may only count on survival [13].

**Presentation of the main material. Characteristics of the domestic producers of mining machines and appliances.** The industry of mining machines and appliances is a market strongly connected with the mining industry. In Poland, considering a long-term tradition and strategic significance for the country, it is a market strongly related to the hard coal mining industry at most. Also lignite and copper mining is of high significance as Poland is an important producer of these resources in the world. The domestic recipients constitute a quite stable and certain source of sales of products and services for the industry of mining machines.

The structure of the industry is varied depending on the type of products and services offered. There may be a core distinguished which consists of producers of machines and appliances provided mostly for the needs of mining as well as of enterprises of a more universal character being the suppliers of machines and tools of a wider range of use than mining. The latter ones are connected with the processes accompanying the underground exploitation: mechanic, electric, transporting, ventilation, air-conditioning or the ones providing safety of extraction.

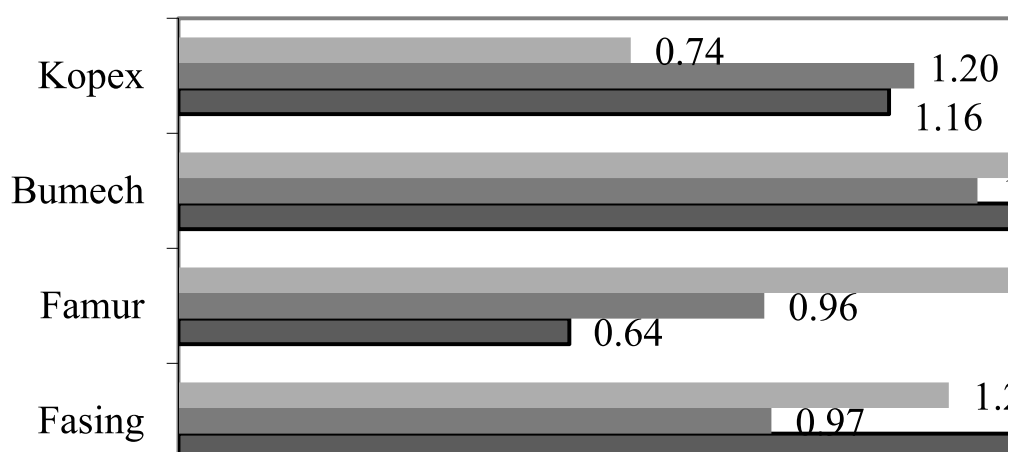
Currently, in Poland there are about nine hundred cooperants and institutional subjects collaborating with the mining industry. Over two hundred of them are the suppliers of machines, appliances and services for the needs of mining. The core of the industry, which provides the equipment typical for mining enterprises, consists of about forty companies. The industry leaders are four enterprises performing in a form of consolidated capital groups. These are the following capital groups: Famur, Kopex, Fasing and Bumech. Their offer of products and services is very wide and diversified due to which these enterprise are able to satisfy the needs of their recipients. Undoubtedly, an advantage of these enterprises is their considerable size and long-term experience what facilitates obtaining new cooperants in Poland and conducting international expansion. On the foreign markets these enterprises are very well recognized and appreciated. All the mentioned enterprises are listed on Warsaw Stock Exchange. The financial characteristics of the leaders from the industry of machines and appliances are included in table 1.

**Basic financial parameters of the Polish leaders from the industry  
of machines and appliances in the years 2008–2011**

Parameter	Year			
	2008	2009	2010	2011
<b>Bumech</b>				
Return on equity <sup>1</sup> [%]	26.47	11.89	16.05	14.48
Return on total assets <sup>2</sup> [%]	14.62	4.81	6.71	4.83
<b>Famur</b>				
Return on equity [%]	8.18	8.85	9.96	20.03
Return on total assets [%]	4.52	5.59	6.26	10.60
<b>Fasing</b>				
Return on equity [%]	4.45	4.45	1.91	12.29
Return on total assets [%]	5.26	5.04	0.99	6.14
<b>Kopex</b>				
Return on equity [%]	0.18	0.60	-0.10	1.44
Return on total assets [%]	0.14	0.54	-0.08	1.09

*Source: own work based on financial reports*

In the analyzed period the industry of mining machines and appliances has been developing which is confirmed by the rising sales revenues presented in figure 1.



*Figure 1. Dynamics indexes of sales revenues of the leaders from the Polish industry of mining machines and appliances in the years 2008-2011 (variable base)*

*Source: own work based on financial reports*

According to data presented in chart 1, almost in the whole examined period sales revenues have been systematically increasing. Furthermore, the increase is especially intensive in the year 2009 when Fasing and Bumech noted over 70 % increase of revenues. In 2010 the pace of revenues increase was halted but it accelerated again in 2011. It proves a high potential of sales increase in the examined industry. It is worth adding in this place that the definite leaders in terms of assets possessed and revenues are Kopex and Famur.

In the years 2007–2012 in the industry of mining machines and appliances there is also the intensification observed concerning consolidation processes conducted by the aforementioned leaders. They aim at strengthening their competitive advantage on the domestic market and gain power to make an

<sup>1</sup>Relation of net income to equity.

<sup>2</sup>Relation of net income to total assets.

international expansion having patterned on the world largest competitors functioning in a form of globalized industrial concerns.

In the next few years a rising tendency is predicted for the industry of mining machines and appliances. Its drive will be the mining industry, both domestic and international. On the foreign markets an intensive rise of demand for mining machines and appliances is forecast, among others, in North and South America. In Asia and Europe the industry will be still increasing but the pace of increase may slow down a bit. In the years 2005-2010 the compound annual growth rate (CAGR) for the industry of mining machines and appliances equaled 9.4 % in the world, what still indicates quite significant development possibilities and very good perspectives for the whole sector.

On the basis of the analysis of the industry of mining machines and appliances and its environment in a form of the mining industry there was a SWOT analysis made. Its results are presented in figure 2 [14].

<p style="text-align: center;"><b>S – strengths</b></p> <ol style="list-style-type: none"> <li>1. High quality of products appreciated on Eastern markets</li> <li>2. Wide range of complex products and services.</li> <li>3. Complementarity of products and services offer.</li> <li>4. Permanent cooperation with recipients.</li> <li>5. Knowledge of all mining technologies.</li> <li>6. Constant development of technologies.</li> <li>7. Including innovative IT solutions in the offer.</li> <li>8. Possessing technologies enabling longwalls drilling of smaller intersections in the rocks difficult for extraction.</li> <li>9. High level of work automation of wall complexes equipped with modern appliances and programs.</li> <li>10. Readiness for cooperation and offering subassemblies for international competitors.</li> <li>11. Industry consolidation conducting international expansion.</li> <li>12. Very good financial results.</li> </ol>	<p style="text-align: center;"><b>W – weaknesses</b></p> <ol style="list-style-type: none"> <li>6. Strong dependance of the industry on the mining industry.</li> <li>7. Quick price increase of mining machines and appliances.</li> <li>8. Unreliability of some mining machines and appliances.</li> <li>9. Lack of industrial strategy of international expansion.</li> <li>10. Lack of industrial promotion of Polish mining machines and appliances.</li> <li>11. Insufficient number of professional employees with industrial education and experience.</li> </ol>
<p style="text-align: center;"><b>O – opportunities</b></p> <ol style="list-style-type: none"> <li>1. Investments in the Polish mining plants.</li> <li>2. Investments in the world mining industry.</li> <li>3. Demand increase for energy in the world.</li> <li>4. Demand increase for hard coal in the world.</li> <li>5. Possibilities of launching representative agencies and enterprises on international markets.</li> <li>6. Actions for non-capital integration (cluster initiatives).</li> </ol>	<p style="text-align: center;"><b>T – threats</b></p> <ol style="list-style-type: none"> <li>1. Increasing restriction concerning carbon dioxide emission.</li> <li>2. Unfavorable changes of exchange rates for the Polish producers.</li> <li>3. Increasing economic recession.</li> <li>4. Natural disasters hindering realization of investments planned in the world mining sector.</li> <li>5. Inner-branch competition on foreign markets deteriorating image of the Polish producers.</li> <li>6. Chinese competition supported by long-term government loans and offering collection of the minerals mined.</li> <li>7. Strengthening of world competition.</li> <li>8. Variability of mining-geological conditions in the target countries.</li> <li>9. Difficulties in access to capital and rising costs of external financing.</li> </ol>

*Figure 2. SWOT analysis of the Polish industry of mining machines and appliances*  
*Source: own work based on financial reports*

**Characteristics of the international producers of mining machines and appliances.** The industry of mining machines and appliances in the world may be considered in two aspects – global competition and competition on internal markets of particular countries. In the hereby point the first of the aforementioned aspects is analyzed.

In the last five years, despite difficult general-economic situation, the industry of mining machines and appliances has been continuously developing due to a few basic circumstances. Firstly, the deposits of metal layers have been under exploitation for many years and currently, their producers need more modern and efficient mining equipment in order to satisfy the market needs. Secondly, mining conditions in underground mining plants have been systematically deteriorating in connection with deeper exploitation and concentration of excavation what makes mining machines and appliances wear out quicker. Therefore they need an overhaul in shorter periods of time. Thirdly, the industry may also gain additional and considerable revenues and incomes from overhaul services, but in some cases these may overrun a purchase price of particular equipment in the period of few years. Finally, the mining industry is undergoing a significant revival these days. In connection with the investment plans on a wide scale, the need for new machines and appliances is increasing.

In terms of global competition, the largest producers of mining machines and appliances are: **Joy Global**, Bucyrus – since 2011 included in the **Caterpillar** concern and **Emeco**.

Caterpillar provides appliances and technology for all kinds of mineral resources excavation. It started activity in California, US, as a producer of construction equipment. In 80s of XX century there was a decision made to enter a market of mining machines and appliances. 8.8 billion dollar acquisition of the market tycoon Bucyrus in 2011 reinforced the position of Caterpillar in the sector of machines for underground mining. Currently, the enterprise's offer is very rich and complex as it includes the following groups of products: machines and tools for open-cast mining in the four groups of products, auxiliary equipment in seven groups of products also possible to use in the construction industry, drilling tools, power generators and equipment for mass rail transport. Moreover, the enterprise provides new technologies for its recipients in a form of IT systems supporting exploitation management which enable, among others, work safety improvement, cost reduction and excavation effectiveness increase.

The range of services offered to recipients is also developed. It includes traditional activities such as leasing, other services, overhaul and trainings as well as additionally, financial support, insurance and logistics services enabling improvement of delivery chain for customers. All of this causes that the recipient is served in a complex way and the enterprise, beside a delivery of equipment needed is also able to provide financing sources, insurance, employees training and many other accompanying services what considerably facilitates the purchase process.

The second important enterprise in the world producing mining machines and appliances is Joy Global, which manufactures equipment for open-cast and underground mines with a dominance of the latter ones. This enterprise possesses over ninety years of tradition in supplying the mining industry in the world. The production conception in Global Joy is based on product life cycle. Thus, the two basic product ranges are equipment for longwalls with running exploitation and for the newly launched pits. The objective of the first equipment group is enabling mining efficiency. In the second group the stress is put on making mining plants development possible and launching new excavation areas. Furthermore, in the product groups of the enterprise there are the following ones: wall systems – complex solutions concerning longwall equipment providing continuous, safe and reliable exploitation, transporting systems – of high loading capacity and low cost of servicing adjusted to the varied mining-geological conditions, belt and comb conveyors as well as loaders.

The segment of services offered is also wide and very modern. In the enterprise's offer there are mostly programs concerning product life cycle management. It enables effectiveness assessment on each stage of exploitation, additionally, it is a tool supporting cost reduction in the mining enterprises. Furthermore, in twenty warehouses, localized in the whole world near the mining areas, the enterprise runs spare parts warehouses open 24 hours 7 days per week, what allows to make a quick repair of equipment and exploitation continuation. The enterprise offers a wide range of trainings for the users of its appliances and programs.

The third enterprise being among the world leaders is Australian Emeco concern (Earth Moving Equipment COmpany), performing on the mining market since 1972. This enterprise provides equipment for the open-cast mines and for surface works. The equipment produced by Emeco may be bought or leased by recipients. The enterprise also offers a complex overhaul of the mining machines and appliances manufactured. The key actions of enterprises are concentrated on providing equipment in accordance with the individual preferences of recipients. Due to a varied system of mining machines and appliances the recipients obtain an incredible opportunity for effectiveness improvement of capital use with production capability increase at the same time. Emeco also offers access for its customers to over a thousand of divisions providing original equipment and spare parts in the whole world. The enterprise is present on Australian, Indonesian, Canadian and Chilean market.

In order to compare the results of Polish enterprises there is return on total assets and on equity of the world leaders presented for the industry of mining machines and appliances.

According to data included in table 2, it may be stated that all the enterprises are specific for good and very good rates of return on assets and equity. Joy Global is a definite leader in this listing.

Additionally, in figure 3 there are dynamics indexes of sales revenues presented for the examined international enterprises in the years 2008-2011. Considering the economic world crisis in 2009 and 2010, sales revenues in Emeco and Caterpillar decreased a lot. Only Joy Global in 2009 gained 5 % sales revenues increase and the fall in 2010 was limited to 2 %. In 2011 all the world leaders noted a rise of sales revenues by 24-41 %. It means that economic improvement occurred in the industry of mining machines and appliances.

Table 2

**Return on equity and total assets for the world leaders from the industry of mining machines and appliances in the years 2008-2011 [%]**

Parameter	Year			
	2008	2009	2010	2011
Return on total assets [%]	5.79 %	1.18 %	-4.86 %	5.06 %
Return on equity [%]	9.62 %	1.94 %	-7.92 %	8.24 %
Return on total assets [%]	5.25 %	1.49 %	4.22 %	6.05 %
Return on equity [%]	52.98 %	9.62 %	23.84 %	36.77 %
Return on total assets [%]	14.22 %	15.18 %	14.11 %	11.24 %
Return on equity [%]	70.29 %	55.87 %	34.38 %	31.24 %

Source: own work based on financial reports

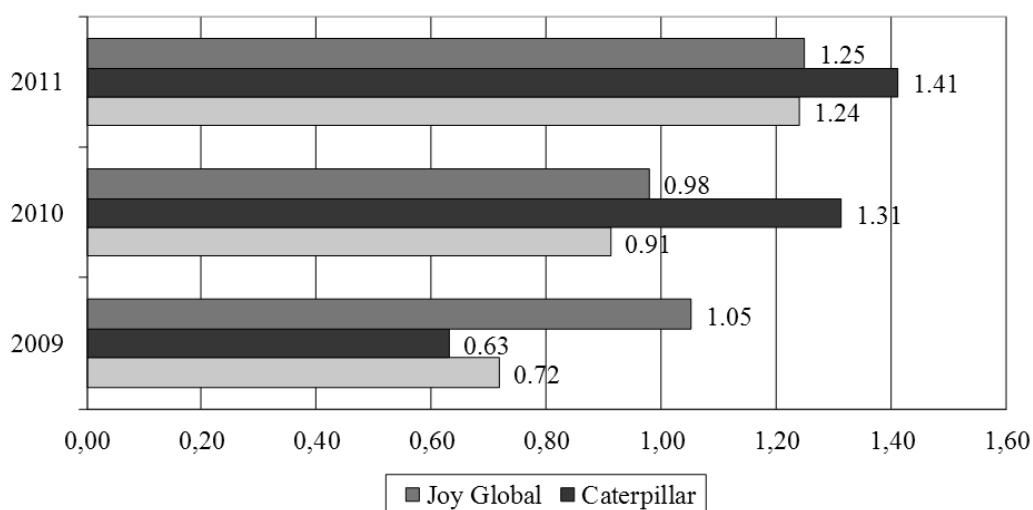


Figure 3. Dynamics indexes of sales revenues in world leaders of the industry of mining machines and appliances in the years 2008-2011 (variable base)

Source: own work based on financial reports

According to the aforementioned characteristics of the world producers of mining machines and appliances it may be stated that they have a much greater capital, asset and scientific potential at their disposal than the Polish enterprises. Their strength is also based on a long-term free-market experience. The range of services and IT technologies is much wider too, offered to customers by the international giants. It is also worth adding that they face the same opportunities on the world markets as the domestic manufacturers. Similarly to the Polish industry, they experience economic improvement in the mining industry what is proved by higher sales revenues and financial results noted in 2011. Their market position is stable and world reputation causes that they constitute a serious threat for the international expansion of the Polish producers of mining machines and appliances. An opportunity for the latter ones is product individualization and searching for market niches. One of them may be concentration on equipment for the underground mines. At that time the competition is limited to Joy Global and Caterpillar (with acquired Bucyrus), as Emeco produces machines for open-cast mining. To sum up, there is SWOT analysis presented in figure 4.

<p style="text-align: center;"><b>S – strengths</b></p> <ol style="list-style-type: none"> <li>1. Long-term experience.</li> <li>2. Large potential of assets, capital and science.</li> <li>3. Very high degree of product and services offer differentiation.</li> <li>4. Diversification of services portfolio (underground and open-cast mining, also offering sales possibilities in the construction industry).</li> <li>5. High degree of IT solutions offered.</li> <li>6. Very good financial results.</li> <li>7. Developed chain of agencies in the world.</li> <li>8. Care about 'soft' aspects of automation – safety, ergonomics, environment protection.</li> <li>9. Fusions and acquisitions reinforcing market power.</li> </ol>	<p style="text-align: center;"><b>W – weaknesses</b></p> <ol style="list-style-type: none"> <li>1. Dependence of industry on mining.</li> <li>2. Low flexibility of actions resulting from a very big scale of activity conducted.</li> </ol>
<p style="text-align: center;"><b>O – opportunities</b></p> <ol style="list-style-type: none"> <li>1. Investments in the world mining industry.</li> <li>2. Demand increase for energy in the world.</li> <li>3. Demand increase for hard coal in the world.</li> <li>4. Possibilities of launching agencies and enterprises on international markets.</li> </ol>	<p style="text-align: center;"><b>T – threats</b></p> <ol style="list-style-type: none"> <li>1. Restrictions increase of carbon dioxide emission.</li> <li>2. Deteriorating economic recession.</li> <li>3. Natural disasters hindering realization of investments planned in world mining sector.</li> <li>4. Chinese competition supported by the long-term government loans and offering collection of resources mined.</li> <li>5. Variability of mining-geological conditions in target countries.</li> </ol>

*Figure 4. SWOT analysis of the world producers of mining machines and appliances  
Source: own work based on financial reports*

**Conclusions and directions for further research.** According to SWOT analysis, in the Polish industry of mining machines and appliances there are strengths dominating which are considerably reinforced by opportunities embedded in the external environment and are mostly connected with an intensive development of the mining industry in Poland and in the world. It means that the industry is currently facing an incredible opportunity for development and may use an aggressive strategy of international expansion. This strategy, compliant with suggestions of strategic management, is only accessible for the industries (enterprises) possessing a majority of strengths intensified by opportunities of external environment. Therefore, it should be stated that the industry of mining machines and appliances in Poland has a potential enabling conquering new sales markets and development of the current ones. The suggested actions, reducing the existing weaknesses of the industry, would be elaborating a cohesive industrial strategy of international expansion and sector promotion on the world mining markets.

In the aspect of global competition, the largest producers of mining machines and appliances are: Joy Global, Bucyrus – in 2011 acquired by Caterpillar, and Emeco. They have a much greater capital, asset and scientific potential at their disposal than the Polish enterprises. Their strength is also based on a long-term free-market experience. The range of services and IT technologies offered to customers is much wider in case of international giants. Their market position is stable and the world reputation makes them a serious threat for the international expansion of the Polish producers of mining machines and appliances.

Further research concerning the assessment of international competition should be related to the particular target markets. At that time assessment of competition may be conducted in the context of the local producers of mining machines and appliances and in the context of global enterprises functioning on such markets [15]. The detailed research on international competition in the industry of mining machines and appliances may also concern the methodological aspects. In such research there may be qualitative and quantitative characteristics of competition used, elaborated on the basis of in-depth questionnaire research as well as market and financial data related to the activity of the examined markets on the particular target markets.

1. Tobolska, A., Matykowski R., *Działalność przemysłowa w warunkach wzrastającej internacjonalizacji i globalizacji na przykładzie wybranych produktów*, *Prace Komisji Geografii Przemysłu* no. 8, Warszawa-Kraków 2006, pp. 46-59. 2. Piercy, N. F., *Company Internationalization: active and reactive exporting*, „*European Journal of Marketing*” 1985, no. 3, pp. 44-46. 3. Rymarczyk J. *Internacjonalizacja i globalizacja przedsiębiorstwa*, PWE, Warszawa 2004, p. 21. 4. Fonfara, K., Gorynia, M., Otta, W., Najlepszy, E., *Przedsiębiorstwo na międzynarodowych rynkach*, Wyd. AE, Poznań 2000. 5. Gorynia, M., Jankowska, B., *Teorie internacjonalizacji*, „*Gospodarka Narodowa*” 2007, no. 10, pp. 22-44. 6. Przybylska K., *Formy internacjonalizacji polskich małych i średnich przedsiębiorstw*, [in:] *Polska wobec procesów globalizacji. Aspekty społeczno-ekonomiczne*, Z. Dach (ed.), Polskie Towarzystwo Ekonomiczne, Kraków 2010, pp. 132-154. 7. Gołębiowski, T., *Formy internacjonalizacji polskich przedsiębiorstw*, „*Marketing i Rynek*” 2007, pp. 16-22. 8. Johanson J., Mattsson L.G., *Internationalization in Industrial Systems – A Network Approach*, [in:] *Strategies in Global Competition*, N. Hood, J. E. Vahlne (ed.), Croom Helm, New York 1988, p. 295. 9. Ratajczak-Mrozek, M., *Podejście sieciowe do internacjonalizacji przedsiębiorstw*, „*Marketing i Rynek*” 2009, nr 3, pp. 7-11. 10. Porter M.E. *Strategia konkurencji. Metody analizy sektorów i konkurentów*, PWE, Warszawa 1994, pp. 63-88. 11. Menon A. *Antecedents and Consequences of Marketing Strategy Making*, “*Journal of Marketing (American Marketing Association)*” 1999, 63 (2), pp. 18–40. 12. Hill, T., Westbrook, R., *SWOT Analysis: It's Time for a Product Recall*, “*Long Range Planning*” 1997, 30 (1), pp. 46–52. 13. Duliniac E. *Badania marketingowe w zarządzaniu przedsiębiorstwem. Wybrane zagadnienia*, PWN, Warszawa 1997, pp. 21-74. 14. Jonek-Kowalska, I., *Analiza rynku maszyn i urządzeń górniczych w warunkach wzrastającej internacjonalizacji*, [in:] *Prognozowanie kierunków internacjonalizacji na przykładzie branży maszyn i urządzeń górniczych*, I. Jonek-Kowalska, A. Michalak (eds.), CeDeWu, Warszawa 2013, pp. 35-58. 15. Дорош О.І. *Маркетингова стратегія у системі забезпечення конкурентоспроможності підприємства* / О.І. Дорош. – *Вісник Нац. ун-ту “Львівська політехніка” Проблеми економіки та управління*, №. 698. – 2011, pp. 150–156.