



Benchmarking of mining companies extracting hard coal in the Upper Silesian Coal Basin



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ABSTRACT

The article presents findings derived from the benchmarking comparison of four mining companies extracting hard coal in the Upper Silesian Coal Basin located on the boarder of the Czech Republic and Poland: OKD a.s. operating in the Czech Republic and three Polish entities Jastrzębska Spółka Węglowa S. A. (JSW), Katowicki Holding Węglowy S. A., and Kompania Węglowa S. A. Although all companies extract the same mineral resource in analogous mining-geological conditions, their economic results differ significantly. The article benchmarks the mining companies in a 5-year period: from 2009 to 2014. Six financial indicators were used in order to achieve the goal: ROE, ROS, ROA, Debt to Equity Ratio, Assets Turnover, and Cash Flow Liquidity Ratio. In addition, the standard variable method was used together with Fuller's method to determine the weights of the different criteria. The benchmarking results, based on the values of integral ratio, show JSW as the leading company in 2009, while in 2014 Czech OKD gained the prime position. In general, during the 5-year observation period, JSW achieved the best financial results. The study presents JSW as the benchmarking leader due to the best performance achieved among the four mining companies extracting hard coal in the Upper Silesian Coal Basin positioned in Central-Eastern Europe.

1. Introduction

As quality exists by comparison, benchmarking has long been popular and developed into many types. It is strongly related to quality management (Zairi, 2011). Drucker (1999) describes benchmarking as a tool to compare one's own efficiency with the best efficiency in the branch. Pojasek (2010) interprets benchmarking so that it identifies differences in efficiency, helps to determine corporate strategy, maintains stimulation for improvement and compares own processes to other companies' practices. Benchmarking also includes knowledge, learning from other companies, and improvements to own production programs (Pojasek, 2010). Benchmarking is usually applied throughout the sectors, including the heavy industry and mining. For example, in 2013 Vaněk et al. compared the major limestone producers in the Czech Republic. Pomykalski et al. (2014) benchmarked Polish metal manufacturing companies, while Antošová et al. (2013) did benchmarking of steel companies in Europe.

The subject of benchmarking herein is the mining enterprises in the Upper Silesian Coal Basin. The Upper Silesian Coal Basin belongs to important European territories where hard coal is being extracted. The exploitation began in the second half of the 18th century. In the

past, the Upper Silesian Coal Basin belonged to one country – the Austria-Hungarian Empire. The contemporary basin spreads in two countries – the Czech Republic and Poland. Overall, the Upper Silesian Coal Basin covers an area of about 7400 km² in southern Poland and Ostrava-Karviná Region in the north of the Czech Republic (CR), with about 5800 km² in Poland and 1600 km² in the CR. It is the most important coal basin in Poland and CR, and also one of the largest in Europe. Up to 30% of the deposit have been extracted within the recent mining operations. The reserve deposits amount to 23% of the area and the prospective areas cover about 27% of the whole area. Over 80% of the Polish coal deposits are located in this area (Paszczka, 2012).

OKD, a subsidiary company of NWR (New World Resources Plc.), is the only mining company exploiting hard coal in the Czech Republic. In Poland three mining companies extract hard coal in the Upper Silesian Coal Basin. They are JSW (Jastrzębska Spółka Węglowa S. A.), KHW (Katowicki Holding Węglowy S. A.), and KW (Kompania Węglowa S. A.). More detailed information about the companies is presented in Section 2 of the article. All four companies encompassed into benchmarking do business in the same geographical territory under the similar mining and geological conditions.

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The aim of benchmarking was to assess each company's overall competitiveness, efficiency and show the ranges of financial performance by the chosen companies in hard coal mining industry between 2009 and 2014. The article contributes to the previous literature with a description of the industry conditions and explanation how each company compares to other companies in a selected group of hard coal producers. This way, it may be interesting to observe how the positions of the concerned mining companies have changed in the market as a consequence of the economic turndown and the changes in the hard coal sector as well.

2. Material and methods

The evaluation of data gathered in a benchmarking process is a multifaceted process that combines qualitative and quantitative criteria. Factors considered in the study generally fall under financial data and include, among others, the size of the company, performance indicators, and measures describing the value of assets and liabilities. The financial data used in the study were derived from financial reports, governmental documents and from publicly available sources, including newspaper articles.

Because of the comparison of four different companies doing business in hard coal mining sector in the Upper Silesian Coal Basin, the benchmark conducted is of an external type. Due to the financial analysis used in the benchmarking process, the research study can be called a financial or performance benchmarking. Furthermore, based on the methodology set out by Camp (1989), authors followed a twelve-stage approach to benchmarking and selected four hard coal companies doing business in the Upper Silesian Coal Basin: OKD in the Czech Republic and JSW, KHW, and KW in Poland. We identified the data sources, collected data, determined the gap and established the process differences.

The benchmark data were used not only to evaluate the four selected companies, but also to assess the future earning potential of each company and identify any weaknesses that need to be improved by the enterprises (Camp, 1989, 1995). The period of analysis encompasses financial crisis years and a big decrease in world's hard coal selling prices: 2009–2014. Particularly, the benchmarking process analyses mining companies doing business in the same geographical region and dealing with changing and difficult economic turmoil. Table 1 summarizes the main characteristics of the four hard coal enterprises in the Upper Silesian Coal Basin.

As it is vital to engage relevant sources and data while performing

benchmarking process, annual financial reports were used as main source of financial and non-financial information. Besides using financial reports for external benchmarking, many companies carry out their internal benchmarking built upon financial data. Usually they apply at least quarterly benchmarking that issues from quarterly financial documents, which thus become the key source of information for the financial managers' decision-making. The popularity of quarterly benchmarking may be confirmed by a survey of the National Investors Relations Institute. The research showed that as much as 95% of respondent companies made annual or quarterly earnings forecasts in 2006, as opposed to 45% in 1999 (Brigham and Ehrhardt, 2014).

On the other hand, although it is advisable to combine internal and external information in benchmarking process, authors used only data from publicly available sources of financial and non-financial information with regard to trade secrets. The above substantially influence the benchmarking process making it an independent and objective analysis. It is in accordance with the literature emphasizing the core role of financial reports (Bradford et al., 2014) as well as with the American Securities and Exchange Commission that emphasizes "timely dissemination" of financial statements to the public. Opinions presented above legitimize financial analyses and benchmarking carried out based on accounting data in order to compare companies' efficiency.

For the purposes of benchmarking herein, suitable indicators (ratios) were selected. Brigham and Ehrhardt (2014) defines financial ratios as to be designed to extract significant data that need not be that clear from mere reading the financial reports. However, it is also important to mention some limitations of ratios, such as (Lee, 2007):

1. financial ratios are mainly based on accounting numbers disclosed in corporate financial reports; these numbers include the flexibility and subjectivity of accounting norms.
2. financial ratios are essentially used in a comparative context over time and between the companies although consistency under nowadays accounting regulations is ambiguous.

Despite the limitations, financial ratios are the most reliable source of information for external investors. Brealey et al. (2012) suggests that financial ratios are "no substitute for a crystal ball", thus being a useful design how high amounts of financial data may be summarized and company performance contrasted.

Among six financial ratios chosen for the benchmarking analysis, three are related to the profit/loss of an entity. Profit (or loss) is

Table 1

Main characteristics of hard coal enterprises in the Upper Silesian Coal Basin.

Source: Annual Reports of OKD, 2009; Consolidated Annual Report of Jastrzębska Spółka Węglowa S.A., 2011; Euracoal Market Report, 2013; Maruszewska et al., 2014; Prospekt Emisyjny Jastrzębska Spółka Węglowa S.A., 2010, 2013; Restructuring of the Hard Coal Mining Sector during the Period, 2004

	JSW	KHW	KW	OKD
Name	Jastrzębska Spółka Węglowa S.A.	Katowicki Holding Węglowy S.A.	Kompania Węglowa S.A.	OKD a.s.
Country of business operations	Republic of Poland	Republic of Poland	Republic of Poland	Czech Republic
Owners' structure [31.12.2015]	Publicly traded on Warsaw Stock Exchange; 5.5% of shares belong to the State Treasury of the Republic of Poland	State Treasury of the Republic of Poland	State Treasury of the Republic of Poland	The sole shareholder is New World Resources N.V. registered in Amsterdam, the Kingdom of Netherlands. New World Resources is publicly traded in Warsaw, London, and Prague.
Number of mines [31.12.2014]	5	11	4	4
Hard coal operational reserves [Mt]	3 900			56.5
Employment [2014]	100,675			11,099
Production [Mt]				
2014	72.5			8.3
2013	76.5			8.8
2012	79.2			11.2
2009	77.4			11.0

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