PROFITABILITY AND ASSET STRUCTURE OF BASIC METAL MANUFACTURING COMPANIES

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Abstract

In recent years basic metal manufacturing companies faced major changes in their environment. The impact of those changes is evident in individual companies but can also be observed in accumulated data for the entire branch. In this paper I examine changes in selected financial ratios of basic metal manufacturing companies operating in Poland, in the period 2006-2014. I search for trends and possible new industry standards in key areas of profitability and balance sheet structure. Years of industry-wide weak profitability indicate that managers will have to assume restructuring efforts to convince investors.

Keywords: Metal manufacturing, financial analysis, Poland

1. INTRODUCTION

Global production of steel manufacturing (measured in thousand tons) grew by 45 % over the last decade (see **Figure 1**).

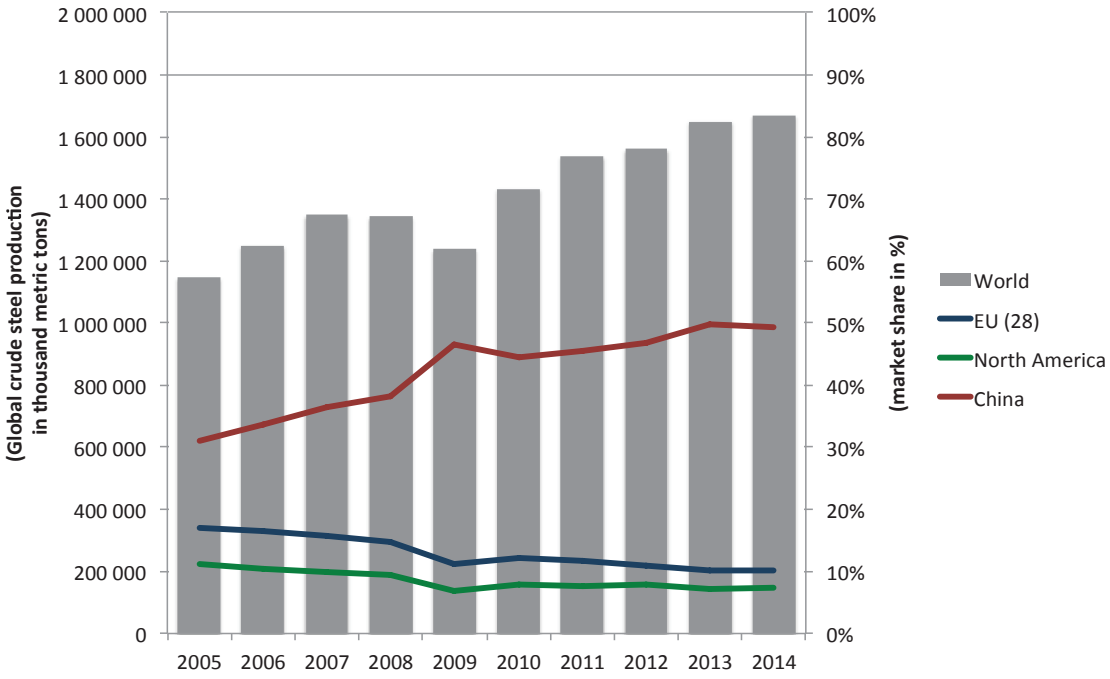


Figure 1 Global production of steel and share of European Union (EU 27), North America and China in Global production of steel (in percent), based on World Steel Association data

The global growth is not evenly spread as both EU and North America continue to decrease their market share (see **Figure 1**) and production quantities (see **Figure 2**). In just ten years production of steel has more than doubled in China and its market share has grown to almost 50 %. In other words 89 % of the global growth in this period can be attributed to facilities located in China.

Production of crude steel is decreasing in Poland since 2007. A modest increase was observed in 2010 and 2011 but this can be attributed to recovery following the crisis in 2009. Steel manufacturers in Poland never reached the production levels attained before the crisis. The changes in demand require adjustments to strategy. In this paper I examine the changes in selected financial ratios of basic metal manufacturing companies operating in Poland.

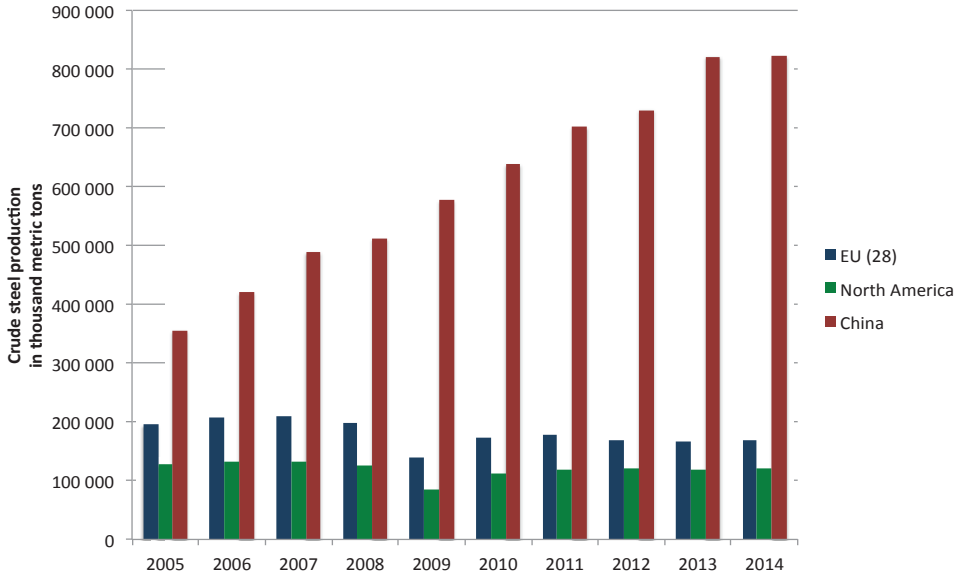


Figure 2 Production of steel in European Union (EU 27), North America and Asia and China in Global production of steel (in thousand metric tons), based on World Steel Association data

2. BENCHMARKING

Investors seek to identify the companies that provide superior performance (competitive strength), which is identified by comparing company's key financial performance indicators in time and against those of similar companies and within the given industry. Companies able to convince investors of their superiority will be provided with funding, and will be able to exploit opportunities. A similar analysis may be carried out for a branch of industry to assess its growth potential and attractiveness for investors.

Most financial performance measurement methods, which are commonly used today, were developed at the beginning of the 20th century [1]. Currently managers and investors use various methods to analyze the information provided in companies' financial statements. One of popular methods of analyzing data in financial management is to calculate financial ratios. Ratios can be used in benchmarking, forecasting and planning. Although in management financial ratio analysis are often supplemented to include non-financial measures such as market share, customer satisfaction or product and process properties [2, 3] financial measures usually form the structure of a consistent analysis.

In management benchmarking can be defined as the process of measuring products, services and practices, processes and entire businesses against competitors, leaders and industries to gain information, which will help the organization to plan actions aimed at improving its performance.

In essence, benchmarking provides a management tool for corporations to measure and compare any element of its activities against the branch average to identify its weaknesses and strengths [4].

In practice businesses and stakeholders use ratios to assess various aspects of operations, investment and financing activities. It is usually assumed that owners are by definition the most important group of stakeholders. Businesses are established to create economic benefits for owners and companies are managed

to create value. A traditional method to assess the effectiveness of value-oriented management is Return on Equity, which is calculated by dividing net profit by total equity. It allows to compare the benefit created for the owner (measured by net profit) to capital invested (measured by equity). A direct link between those two variables is difficult to analyze - it is not obvious whether additional capital invested will generate additional profit for the owners. The link can be analyzed using the Du Pont model. Donaldson Brown, an executive with Du Pont and General Motors corporations, introduced the original Du Pont model in 1918. Brown noticed that ROA can be analyzed as the product of two often-computed ratios, net profit margin and total asset turnover. The elegance and simplicity of ROA being affected by a profitability measure and an efficiency measure led to the Du Pont method becoming a widely used tool of financial analysis. Prior studies document that the DuPont analysis, which decomposes return on assets into profit margin and asset turnover, have explanatory power with respect to changes in future profitability and investor relations [5]. In the 1970's, emphasis in financial analysis shifted from ROA to return on equity (ROE), and the Du Pont model was modified to include the ratio of total assets to equity.

Using the standard Du Pont model [6], ROE can be presented as [6]:

$$ROE = ROS \times AT \times CM,$$

where: ROE return on equity, ROS - return on Sales, AT asset turnover, CM capital multiplier (Assets divided by Equity).
Return on Sales is calculated as:

$$ROS = \text{Net profit} / \text{Sales}$$

Asset turnover is calculated as:

$$AT = \text{Sales} / \text{Total Assets}$$

Capital Multiplier is calculated as:

$$CM = \text{Total assets} / \text{Equity}$$

The components describe operating, investing and financing activities of businesses. In this paper they are used to describe an entire branch of industry as cumulative industry data is utilized.

The analysis is carried out in two steps. The first step refers to the original du Pont model focuses on components of ROA (ROS and AT). The second step focuses on the components of ROE (ROA and CM). ROA and its components describe operating and investing activities while ROE and its components describe financing structure decisions.

The contribution of this paper is to document that following the economic crisis in 2009 decrease in profitability of metal manufacturing companies in Poland forced managers to change the financing structure. The paper follows earlier research and discussions on the impact of economic crisis on changes in profitability and financing structure of metal manufacturing companies [7, 8].

Practical application of the methods and conclusions used in this paper depends on managements' approach to benchmarking. Lema and Price [9] argue that for benchmarking to be applied successfully an organization has to:

- accept that it requires to change and improve its performance,
- accept that it can learn from others,
- be willing and capable of changing its policies and strategies.

3. DATA DESCRIPTION

Dataset is based on survey data published by the Central Statistical Office of Poland (GUS). The survey covers economic entities with 10 and more people employed (see **Table 1**). Manufacturing refers to NACE section C. Manufacture of basic metals refers to NACE ver. 2 section C division 24 (former NACE ver. 1.1. section D division 27).

Table 1 Number of entities covered by the dataset, data of Central Statistical Office

	2006	2007	2008	2009	2010	2011	2012	2013	2014
Number of Companies	259	267	276	263	256	272	276	293	296

4. DEFINING KEY MEASURES IN A CHANGING ENVIRONMENT

Basic metal manufacturing companies in Poland suffered from a decrease in revenues in 2009 (see **Figure 3**). In 2010 revenues increased and in 2011 reached higher values than before the crisis. In the following years revenues fell proportionally to the decrease in production of crude steel.

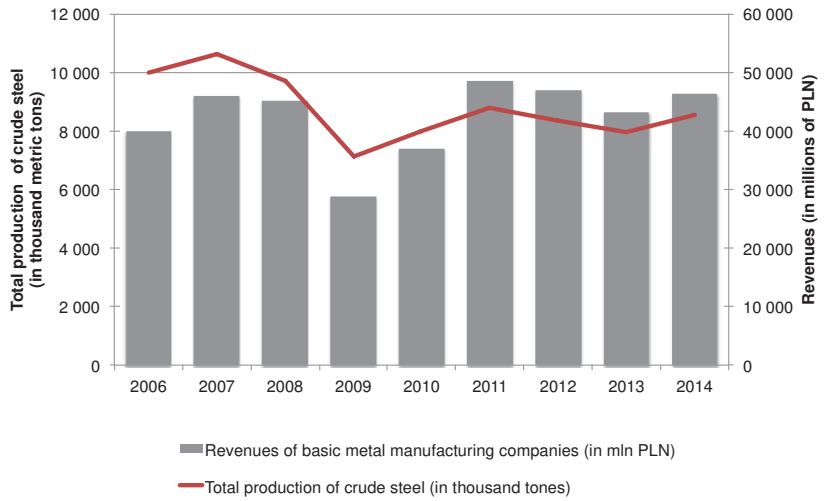
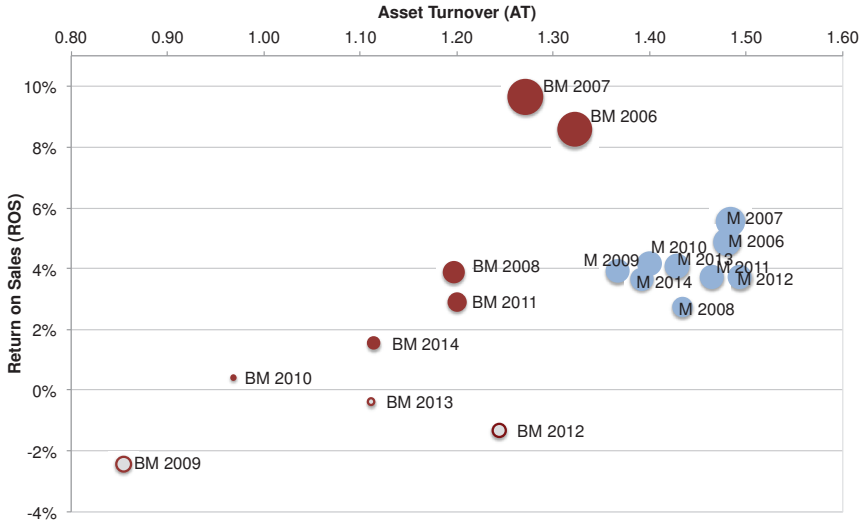


Figure 3 Revenues in Polish basic metal manufacturers, 2006-2011 (in MPLN), based on Polish Main Statistical Office data

Profitability has not recovered to the levels recorded before the crisis (see **Figure 2**). This is more visible in Return on Sales (ROS) ratio (see **Figure 4**), which is calculated as Net Profit divided by Revenues. ROS in basic metal manufacturing companies in Poland has fallen following the global financial crisis in 2009. Recovery is slow and ROS was negative both in 2009, 2012 and 2013.



Size of the bubble corresponds to Return on Assets (ROA). The values of ROA were negative in 2009, 2012 and 2013.

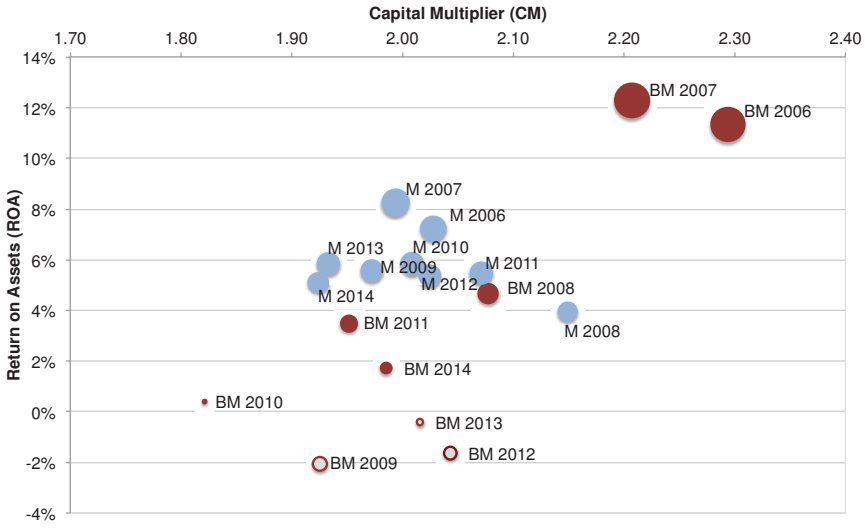
Figure 4 Return on Sales (in %) and Asset Turnover (multiple of total assets) in Polish basic metal manufacturers, 2006-2014, based on Polish Main Statistical Office data

In recent years it can be observed that:

1. Values of ROS and AT are lower than for manufacturing companies (observed in all of the period 2009-2014). In some years (2009, 2012 and 2013) ROS was negative.
2. Volatility of ROS and AT is substantial. The data for basic metal manufacturing companies is scattered. Return on sales varies between -2.4 % in 2009 and 9.7 % in 2007. Asset turnover varied between 0.85 in 2009 and 1.32 in 2006. The results for manufacturing companies are less volatile.
3. ROA in basic metal manufacturing companies was below ROA in manufacturing for all years after 2007.

Results imply that compared to manufacturing assets invested in basic metal manufacturing generate lower return on assets and bear higher volatility (risk) for investors.

Analysis of Return on Equity (ROE) compares ROA and Capital multiplier (see **Figure 5**). As mentioned earlier ROA in basic metal manufacturers was lower than for manufacturing companies in the period 2009-2014. Capital multiplier was comparably above manufacturing in 2006 and 2007 and again in the period 2012-2014.



Size of the bubble corresponds to Return on Equity (ROE). The values of ROE were negative in 2009, 2012 and 2013.

Figure 5 Return on Assets (in %) and Capital Multiplier (multiple of total equity) in Polish basic metal manufacturers, 2006-2014, based on Polish Main Statistical Office data

Capital multiplier corresponds to the use of financial leverage (debt in financing). The use of debt increases the return on equity but at the same time it also increases risk. More indebted companies loose a bigger share of equity if they are not able to generate returns, which are higher, than the cost of debt.

In 2012 and 2013 the use of financial leverage (higher than in manufacturing) was a burden for basic metal manufacturers who were not able to generate positive returns on assets. In 2014 the leverage (still higher than for manufacturing) was not sufficient to compensate for the lower ROA. ROE is consistently lower than in manufacturing for the period 2009-2014.

5. CONCLUSIONS

ROE in basic metal manufacturers located in Poland was consistently lower than in manufacturing for all years following the outbreak of the crisis in 2009. Basic metal manufacturers responded by decreasing financial leverage in the period 2008-2010. Comparably lower ROA induces managers to increase the financial leverage in hopes of improving ROE. The branch is showing low or even negative profitability as revenues continue to stagnate while Chinese market share continues to grow. Cost optimization, process improvements that may potentially change ROS and AT are necessary to encourage investors to keep assets in Poland.

The methods applied in the analysis seem lead to consistent results and can applied to benchmark companies, groups of companies and industries. The results are easier to observe in longer time spans.

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