

The analysis and evaluation of capital structure in the Polish mining enterprises

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Abstract. Mining industry is a specific, highly capital-consuming industry of a special significance for the economy. The assets of the mining enterprises, due to the profile of their activity, are very often permanently fixed in a particular place which makes them immobile, they have a high amount in the balance sheet and they are mostly very difficult to change into cash (buildings and objects of underground engineering, excavations, professional mining appliances etc.). The objective of the research presented in the hereby article is the analysis and evaluation of capital structure in the Polish mining enterprises.

Among the basic methods used in the research process there may be the ratio analysis mostly distinguished. Afterwards the results of analysis were compared and generalized. The research process was enriched with the synthesis which was used for drawing the final conclusions. The research is based on the literature studies and analysis of the original documents obtained from the examined enterprises (financial reports). The subject of the research are 4 Polish mining enterprises. The period of the research encompasses the years 2009-2012.

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1. THE NOTION OF CAPITAL STRUCTURE

Each economic activity requires capital engagement (Bludnik 2008). It rises the problems of selecting the type of capital and determining its sources, what directly translates into creation of a specific capital structure. In the financial literature there is no uniformity concerning the definition of capital structure in a company, there is also liabilities structure and structure of financing sources used interchangeably.

Capital structure is most often defined as a relation of debt capital and equity (Janasz 2010, p.35). Nevertheless, in many publications capital structure is not identified with the structure of liabilities. According to such approach, in frames of capital structure there should be no liabilities included which the company does not pay any interest on (that is, trade credits, amounts due to taxes and to remuneration etc.) (Duliniec 2001, p.17).

According to R. Masulis, R. Higgins, S. Ross and others (Masulis 1998, p.1; Higgins 1992, pp.344-345; Ross, Westerfields & Jaffe 1996, p.4) capital structure is identified with the structure of liabilities in the balance sheet of company which is also called financing structure at the same time. In turn, according to E. Helfert (Helfert 1994, pp.482-483) and J. Downes and J. Goodman (Downes & Goodman 1994, p.60), capital structure is only reflected in a configuration of fixed capital, that is in a relation of equity and long-term debt capital.

Another approach to defining capital structure is presented by R. Brealey and S. Myers, as associating it with the structure of securities issued by the company with a division into debt and owner (shareholders) securities (Brealey & Myers 1991, p.397).

In the hereby article capital structure is identified with the structure of liabilities. The object of the research is thereby the relation of equity and debt capital.

2. THE EVALUATION MEASURES OF CAPITAL STRUCTURE

Firstly, analysis of capital structure requires to examine the **share of equity and debt capital in capital structure**. For this purpose two ratios should be determined:

$$\text{equity share ratio} = \text{equity} / \text{total capital} * 100$$

$$\text{debt capital share ratio} = \text{debt capital} / \text{total capital} * 100$$

An important ratio fulfilling the analysis of capital structure is the **level of net operating capital**, also called working capital. It may be indicated by subtracting the value of short-term liabilities from current assets or, in another way, subtracting the value of fixed assets from the value of fixed capital. Fixed capital of the company consists of equity and long-term liabilities.

When examining the capital structure in a company, there is also the **level of covering fixed assets by equity ratio**:

$$\text{level of covering fixed assets by equity ratio} = \text{equity} / \text{fixed assets} * 100$$

When the value of this ratio is equal or higher than 100% it means that the golden balance sheet rule is fulfilled. It says that fixed assets, which are engaged in conducting a long-term activity, should be fully financed by equity.

Another ratio allowing evaluation of capital structure is **return on equity (ROE)**, determined according to the formula:

$$\text{return on equity (ROE)} = \text{net income} / \text{average equity}$$

It informs about the value of net income meant for a unit of equity engaged. The higher the value of this ratio is the more favorable financial situation of company is.

In the next step the ratio of return on equity is compared with the profitability of all engaged capitals, expressed by the Return on Net Operating Assets (RNOA). This comparison enables evaluation of the effect of financial leverage occurring in the particular companies of the industry (Bukair, 2013). The ratio of return on assets is indicated according to the formula:

$$\text{Return on Net Operating Assets (RNOA)} = \text{Net Operating Profit After Taxes (NOPAT)} / \text{Average Net Operating Assets (NOA)}$$

where:

$$\text{NOPAT} = \text{EBIT} * (1 - T),$$

T- income tax

(NOA = fixed assets + operating assets – short-term financial assets – operating liabilities (short-term, without interest).

The effect of financial leverage means that, in the result of constant burden by interest, the fluctuations of net income per one unit of equity are more or less proportional in relation with the fluctuations of operating income (before interest payment and taxes - *Earnings Before deducting Interest and Taxes* – EBIT).

In a situation when the **financial leverage ratio (debt / equity)** is higher than zero the effect of financial leverage occurs. The effects of financial leverage may be positive, when they translate into increase of earnings per one share or negative, when they contribute to decrease of earnings. Positive effects of financial leverage appear in a situation when the return on equity (ROE) is higher than the return on net operating assets (RNOA)

3. CAPITAL STRUCTURE OF THE POLISH MINING ENTERPRISES

In the mining industry there are currently about 30 coal mines functioning that are grouped in the structure of five mining enterprises. These are:

- Kompania Węglowa S.A. (15 coal mines, employment 60 000 people),

- Katowicki Holding Węglowy S.A. (5 coal mines, employment 18 000 people),
- Jastrzębska Spółka Węglowa S.A. (5 coal mines, employment 30 000 people),
- Południowy Koncern Węglowy S.A. (2 coal mines, employment 6 000 people),
- Lubelski Węgiel Bogdanka S.A. (independent coal mine, employment 4 000 people).

Because of the availability of data, the analysis of capital structure conducted in the hereby article includes four of the aforementioned mining enterprises.

The analysis of capital structure in the Polish mining enterprises was started from calculating the equity share ratio and debt capital share ratio in total capital. The results are presented in table 1.

Table 1. Capital structure of Polish mining enterprises in years 2009-2012 [%]

| Enterprise | Capital | 2009 | 2010 | 2011 | 2012 |
|---------------------------------|--------------|-------|-------|-------|-------|
| Kompania Węglowa S.A. | Equity | 14.24 | 21.06 | 24.85 | 14.81 |
| | Debt capital | 85.76 | 78.94 | 75.15 | 84.99 |
| Katowicki Holding Węglowy S.A. | Equity | 29.10 | 29.88 | 32.59 | 26.68 |
| | Debt capital | 70.90 | 70.11 | 67.41 | 73.32 |
| Jastrzębska Spółka Węglowa S.A. | Equity | 45.06 | 57.51 | 62.00 | 60.95 |
| | Debt capital | 54.94 | 42.49 | 38.00 | 39.05 |
| LW „Bogdanka” S.A. | Equity | 70.36 | 69.60 | 69.56 | 65.89 |
| | Debt capital | 29.64 | 30.40 | 30.44 | 34.11 |

Source: own work based on financial reports from the examined mining enterprises.

The most indebted mining enterprise in the industry is Kompania Węglowa S.A. Debt capital also dominates in Katowicki Holding Węglowy S.A. A balanced capital structure is specific for Jastrzębska Spółka Węglowa S.A. and equity dominates in LW „Bogdanka” S.A.

The next examined element is the value of net operating capital. It is included in table 2.

Table 2. The value of net operating capital of the Polish mining enterprises in the years 2009-2012 [PLN]

| Enterprise | 2009 | 2010 | 2011 | 2012 |
|---------------------------------|--------------|---------------|---------------|---------------|
| Kompania Węglowa S.A. | -647 712 232 | 152 427 758 | 376 807 189 | 65 987 186 |
| Katowicki Holding Węglowy S.A. | -966 170 126 | -975 766 690 | -901 676 111 | -420 356 176 |
| Jastrzębska Spółka Węglowa S.A. | -169 900 000 | 1 179 055 720 | 2 229 900 000 | 1 818 000 000 |
| LW „Bogdanka” S.A. | 552 990 000 | 225 049 000 | 60 484 000 | 5 829 000 |

Source: own work based on financial reports from the examined mining enterprises.

Operating capital was negative in the first analyzed year in Kompania Węglowa S.A., what indicates a very risky configuration in which the difficult to cash fixed assets of mining enterprise are financed by the short-term liabilities. However, in the next two years the operating capital changed its sign into positive one, what is justified by limiting the financial risk. In the last year of analysis fixed capital financed about 10% of current assets in Kompania Węglowa S.A. Katowicki Holding Węglowy had negative working capital in the whole analyzed period and maintained it on a relatively fixed level (yearly over 20% of fixed assets were financed by short-term liabilities). It is connected with high financial risk. However, in Jastrzębska Spółka Węglowa positive working capital is firm (although it was negative in the first analyzed year). In 2010 this enterprise financed total fixed assets by fixed capital as well as 35% of current assets and in 2011 almost 50%. Such strategy regarding the financing structure was also selected by LW Bogdanka S.A., which in each year of the analyzed period had positive working capital, however, in contrary to Jastrzębska Spółka Węglowa, it was decreasing every year. In 2009 fixed capital was financing, apart from fixed assets, over 68% of current assets. In the subsequent years the degree of financing operating assets in this enterprise was decreasing to the level of about 16%.

Next, the level of covering fixed assets by equity ratio was examined which allows to determine whether the golden balance sheet rule is fulfilled in the enterprise. It is included in table 3.

Table 3. The level of covering fixed assets by equity ratio in Polish mining enterprises in the years 2009-2012

| Enterprise | 2009 | 2010 | 2011 | 2012 |
|---------------------------------|------|------|------|------|
| Kompania Węglowa S.A. | 19% | 32% | 37% | 22 % |
| Katowicki Holding Węglowy S.A. | 37% | 36% | 39% | 34 % |
| Jastrzębska Spółka Węglowa S.A. | 67% | 85% | 95% | 88 % |
| LW „Bogdanka” S.A. | 105% | 89% | 79% | 75 % |

Source: own work based on financial reports from the examined mining enterprises.

In none of the examined Polish mining enterprises (except for one case in 2009) the golden balance sheet rule was achieved. Jastrzębska Spółka Węglowa and LW Bogdanka were the closest to achieving it where equity was financing a great part of fixed assets; in case of the first enterprise it was 95% in the last year of analysis and in the second one it was about 80%. Furthermore, in case of Kompania Węglowa and Katowicki Holding Węglowy we deal with a situation in which equity was financing almost 40% of fixed assets. Considering the character of fixed assets in a mining enterprise, it is a situation indicating a very high financing risk.

Another element taken into account in the evaluation of capital structure is return on equity (ROE) and return on all the capitals engaged in company's activity measured by the return on net operating assets (RNOA) ratio. The calculated ratios are presented in table 4.

Table 4. Return on equity (ROE) and return on net operating assets (RNOA) in the Polish mining enterprises in the years 2009-2012 [%]

| Enterprise | 2009 | | 2010 | | 2011 | | 2012 | |
|---------------------------------|-------|------|------|------|------|------|------|-------|
| | ROE | RNOA | ROE | RNOA | ROE | RNOA | ROE | RNOA |
| Kompania Węglowa S.A. | 1.8 | 0.3 | 1.6 | 0.3 | 19.6 | 4.5 | 11.1 | 3.15 |
| Katowicki Holding Węglowy S.A. | 6.6 | 2.0 | 2.2 | 0.7 | 10.7 | 3.3 | 3.9 | 3.24 |
| Jastrzębska Spółka Węglowa S.A. | -13.0 | -7.1 | 27.6 | 15.2 | 28.9 | 17.4 | 11.6 | 12.76 |
| LW „Bogdanka” S.A. | 13.4 | 9.3 | 12.3 | 8.6 | 10.7 | 7.5 | 13.1 | 10.47 |

Source: own work based on financial reports from the examined mining enterprises.

In each of the examined enterprises the return on equity (ROE) was higher than the total return on net operating assets (RNOA), which stems from burdening the debt capital with financial costs. Significant differences between these two ratios show that there is a high share of financial costs in the total costs of mining enterprises. In the examined period all the enterprises, except for Jastrzębska Spółka Węglowa in the year 2009, achieved the positive financial results. It translated into the positive levels of ROE and RNOA ratios. The highest fluctuations in return may be observed in case of Jastrzębska Spółka Węglowa. It is the only enterprise among the examined ones which specializes in mining a high quality type of coal used on the market of steel and coking coal. The remaining enterprises extract the hard coal for energy purpose (power coal) (Oji, 2012). In 2009 Jastrzębska Spółka Węglowa noted a negative return in the result of the global financial crisis which especially affected the market of steel and coking coal (Korenik 2002). The sales of coking coal started to fall and prices went down by about 50%. The other enterprises specializing in power coal survived the crisis without loss. In the year 2010 Jastrzębska Spółka Węglowa made up for the losses from the previous year, reaching a record return on equity in the industry on the level of over 27%, in the view of total capital return equaling over 15%. In the next year these indicators were slightly improved. The second mining enterprise, considering returns, is LW „Bogdanka”. The return on equity in this enterprise amounted to from 13.4% in 2009 and to 10.7% in 2011. It is a satisfactory value although a decreasing tendency of this ratio may be worrying. A similar situation occurs in case of return of total engaged capital. It fell from 9.3% in 2009 to 7.5% in 2011, but it still remained one of the highest in the industry in 2012.

In Kompania Węglowa, which is the highest and at the same time the most indebted enterprise in the industry, in the two first years of analysis the return indicators were on a very low level. The return on equity equaled almost 2%, which is a much lower value than the risk-free rate. The situation considerably improved in 2011 when the net income increased fifteen times in comparison with the previous year, with a slight increase of equity value. In this situation the return on equity of Kompania Węglowa increased to almost 20% with 4.5% level of the ratio of total assets return.

A significant increase of return was also noted in Katowicki Holding Węglowy in the year 2011. The return on equity increased from the level of 6.6% and 2.2%, accordingly in 2009 and 2010, to 10% in 2011. However, the return on net operating assets, similarly to Kompania Węglowa, still remained relatively low (about 3% in 2012).

In the last stage of capital structure evaluation in the Polish mining enterprises the financial leverage ratio (debt to equity) was examined. The results obtained are included in table 5.

Table 5. Value of debt to equity ratio in the Polish mining enterprises in the years 2009-2012

| Enterprise | 2009 | 2010 | 2011 | 2012 |
|---------------------------------|------|------|------|------|
| Kompania Węglowa S.A. | 6.02 | 3.66 | 3.02 | 5.74 |
| Katowicki Holding Węglowy S.A. | 2.44 | 2.35 | 2.07 | 2.75 |
| Jastrzębska Spółka Węglowa S.A. | 0.90 | 0.74 | 0.61 | 0.64 |
| LW „Bogdanka” S.A. | 0.42 | 0.44 | 0.44 | 0.52 |

Source: own work based on financial reports from the examined mining enterprises.

The highest value of debt to equity ratio was achieved by Kompania Węglowa and Katowicki Holding Węglowy. In most of the cases these were the enterprises with the highest debt. Such value of financial leverage ratio is an opportunity for gaining the positive effects of leverage in a configuration in which the return on equity ratio is higher than the return on total assets (Klimek, 2011). In the conditions of such a high debt that we deal with in case of these enterprises, it is an especially risky situation from the point of view of financial liquidity (Lange, 2010). Two other enterprises from the examined industry are specific for a much higher level of debt to equity ratio, nevertheless, the effects of financial leverage are also positive in their case.

4. CONCLUSIONS

The mining industry in Poland has been considered as highly indebted, unprofitable and being in a declining stage. However, currently the mining industry is undergoing a gradual revival. The Polish mining enterprises are the leading hard coal producers in Europe (Jonek-Kowalska, 2011). Progressive changes on the coal market cause that financing of the mining enterprises becomes a current and important issue. Therefore, in the hereby article there was a problem of analysis raised along with evaluation of capital structure in the Polish mining enterprises. The analysis included 4 biggest mining enterprises and the research period included the years 2009-2012.

In the capital structures of the two biggest Polish mining enterprises there is a debt capital dominating. In Kompania Węglowa the share of debt in the capital structure is the highest in the industry and, although it decreases year by year, it was about 75% in the final year of analysis. Also in Katowicki Holding Węglowy the debt constitutes about 40% of total capital. In these enterprises the financial risk is the highest. The lowest ratio of debt share in the capital structure is in LW „Bogdanka” where it equals about 30%. In Jastrzębska Spółka Węglowa the share of debt in the capital structure is of a decreasing tendency and in the last

analyzed year it amounted to almost 40%. Taking debt into account, the mining industry is divided into two groups. On the one hand, there are enterprises of much better financial conditions and more favorable configuration of the capital structure in the Polish mining industry. These are Jastrzębska Spółka Węglowa and LW „Bogdanka” – the enterprises listed on the stock exchange. The capital structure of these enterprises is balanced, with a periodical dominance of equity. Fixed assets in these enterprises are in a great part or periodically, even in total, financed by equity what significantly reduces the financial risk.

On the other hand, there are highly indebted enterprises. But these are enterprises with good future perspectives. They slowly rebuild their equity, indicating at the same time a very low but positive return on total assets and growing, even satisfactorily high in 2012, return on equity. Although the activity of mining enterprises is accompanied by a high financial risk resulting from the negative or very low net operating capital and low level of covering fixed assets by equity, they are on a good path to curing their finances.

In general, the mining industry should be considered as a profitable industry even though in the first analyzed years the level of returns was very low or sometimes negative. It was caused by the global financial crisis which affected the demand and price of hard coal. However, the industry was able to face the crisis and in 2012 it already reached the return on equity on a decent level from 4% to almost 13% in the particular mining enterprises. The return on equity (ROE) is higher in most cases than the return on net operating assets (RNOA). These enterprises use a positive effect of financial leverage in this way.

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