

THE CAPITAL STRUCTURE AND DEBT RATIOS OF METALLURGICAL COMPANIES

František RÓN, Michal BOBEK

University of Economics, Prague, Faculty of Finance and Accounting, Department of Corporate Finance and Business Valuation, Prgue, Czech Republic, EU, frantisek.ron@gmail.com, michael.bobek@gmail.com

Abstract

Main purpose of this article is to analyze and compare the capital structure of metallurgical industry in the Czech Republic, Poland and Slovak Republic before and during so called financial crisis and to find out an extent of impact of the financial crisis on metallurgical industries' firms capital structure. The analysis primarily focuses on the debt ratios and covers the years from 2006 to 2010. The leverage is crucial for companies' activities and significantly affects their financial stability, which could have been threatened by circumstances occurring during the crisis. The paper presents horizontal and vertical analysis of aggregated financial statements for each country taking into consideration company size and concerns with changes of equity and liabilities during the period. The analysis uses as well the debt ratios as debt ratio, capitalization ratio and interest coverage ratio, capital expenditures, fixed assets to long term capital etc.

Keywords: capital structure, debt ratios, financial crisis

1. INTRODUCTION

Capital structure of companies consists of equity and debt which can appear in miscellaneous forms, as described e.g. by Brealey et al. [1]. The matter of proportion of debt and equity and its influence on the market value was an important academic topic and many theories appeared, which claimed the extraneousness of the capital structure on the value of company, the others claims the value of the company increase due to the indebtedness etc. The aim of this article is to research the capital structure of the companies operating in the metallurgical industry and to describe the capital structure which is typical for metallurgical companies in the middle Europe. As the period 2006-2010 is analyzed, the influence of financial crisis will be demonstrated.

The features of metallurgical industries from the capital structure point of view are (i) investments and (ii) material and energy requirements [2]. The operation in the metallurgical industry requires high initial investment because the company has to have above-average proportion of fixed assets. Therefore, the companies should cover the long-term investment by long-term sources. High demand for material indicates using short-term debts for financing these purchases, as e.g. Hutnictví železa [3] states. The metallurgical industry is in process of international consolidation [4] and as well large companies in the analyzed countries were privatized by international holdings. Large companies in Czech Republic were bought by ArcelorMittal and Evraz (plants in Ostrava), the largest company in Poland by ArcelorMittal and in Slovakia by US Steel.

Metallurgical industry was influenced by the financial crisis and by different economic growth in world. The demand in Europe is decreasing, however, the Chinese demand increase. Therefore, the industry is going through the restructuring consolidation. Especially the European industry will have to decrease the capacity as Antošová et al. [5] states. The process of restructuring started after the outbreak of the financial crisis, because the publication of BCG [6] forecasted very positive development around the world. Development after 2008 is connected with closing of old and unprofitable plants in industrialized countries [7]. Financial crisis changed the environment of the companies considerably because they expected the "fat years", however the "extra thin years" appeared. Gajdzik [8] states due to the financial crisis increased liabilities which increase the risk of companies. The debt/equity ratio of TOP 20 metallurgical producers was 88% in 2011 [7]. This ratio is according to this study [7] high and it is expected it should be lowered. Companies used the low interest rates

however they are not prepared for increase of interest rates currently. Therefore, metallurgical companies should change the ratio debt to equity. The study of Ernst & Young [7] forecast that the final proportion of debt/equity ratio should be 55%. To achieve this goal, companies reduce their capital expenditures; however this step contradicts the cost reduction which demands the new investments. As Ernst&Young [7] states, companies should divest the unprofitable assets and focus especially on the core business. Debt management became an important part of the management activities after start of the financial crisis as the survey in Gajdzik [9] presents. However, costs of debt management were the lowest costs in comparison with other activities done in the crisis (dismissal, shut-down of unprofitable plants etc.).

2. METODOLOGY AND SAMPLE

Analysis is based on the horizontal and vertical analysis of equity and liabilities and on debt or similar ratios (capitalization ratio and Interest coverage ratio etc.). As a basis for vertical analysis were chosen Total shareholders' funds and liabilities. Data for the analysis were obtained from database Amadeus [10] the set NACE rev. 2, industry group number 24 - Manufacture of basic metal. Source contained 225 companies from Czech Republic, 544 Polish firms and 81 Slovak Companies. The records with irrelevant data were excluded; the database contains 700 records from Czech Republic, 1022 from Poland and 224 from Slovakia. Data from 2010 are missing for major part of companies, but the basis is still representative.

Values of components of balance and debt ratios were aggregated from 4 size groups of companies - small, medium, large and very large. Inside the size groups were aggregations made as a geometric mean of all relevant values. Final values were then calculated as a weighted average, where weights for each group were shares of their sales on total sales of the metallurgical industry in the particular country.

3. VERTICAL AND HORIZONTAL ANALYSIS

3.1 Czech Republic

Shareholders' funds make more than 60% of total balance during the period, which should indicate the stability of Czech metallurgical companies. However, differences are visible in case of different company size: Smaller companies have less equity than the average value in Czech industry - small: 45% of total equity and liabilities, the medium 36%, large 34 %, very large 78%. There is an evident rise of this shareholders' funds' share in 2008 caused by quicker decrease of all main components of liabilities than the decrease of equity. Years 2006 and 2007 are stable for all size of companies, differences appeared in 2008 - the equity of small and middle-sized companies started to fall. The reason is (i) increase of liabilities in 2008 as the immediate factor of financial crisis and (ii) fall of equity in 2009 as the consequence of losses. The crisis affected smaller companies deeply, because the share of equity of larger companies is more dependent on the highness of liabilities, the value of smaller companies is influenced by immediate losses. The total balance grew until 2008 which confirm the pre-crisis BCG report [6] indicating the future growth.

Development of current liabilities in the Czech Republic is very similar for small (share 54% of total balance), medium (49%) and large (56%) companies. Very large companies achieved much lower values (22%), because of high usage of equity during the time horizon. Crucial component of current liabilities in the Czech Republic are creditors, therefore, current liabilities are influenced by economic activity of company. The share of non-current liabilities is very low - small and very large companies have share on basis only 1% in average and many companies even do not use the long-term debt. Non-current liabilities are used by medium and large companies (averages of 15% and 10%) in the Czech Republic.

3.2 Poland

On the contrary, Polish metallurgical companies have much less equity than Czech and Slovak firms which indicates difficult times of Polish companies before the analyzed period. Share of equity is rising above 40% through the horizon more due to a massive decrease of aggregate total balance than due to retained profits. The Polish small companies had more equity (average share of 66%) than very large companies (average share of slightly above 50%). These results are opposite to the results of Czech companies. On the other hand, medium and large companies have lower equity than small and very large companies - Large companies: 42%, medium companies 24%. Main reasons of lowest numbers of medium companies are losses throughout the crisis.

Polish companies use current liabilities more than the Czech or Slovak companies. The highest share of current liabilities is achieved by large companies with average share of 52.6%. Main component of current liabilities in Poland are loans (share between 20% and 30% of basis), especially before the crisis. The usage of loans is the main difference to the Czech and Slovak companies. On the other hand very large companies in Poland used primarily equity and Non-current liabilities, therefore the computed average share of current liabilities is only 4.5%. The share of non-current liabilities raised until 2009 (2006: 8.4%, 2009: 17.2%). The increase was caused by the very large companies which achieved average value of 41% (small 8.8%, medium 1.2% and large 5.7%). The share of non-current liabilities decreased in 2010 (12.1%). It is important to mention, that the non-current liabilities are made by other non-current liabilities, not by the long term debt.

3.3 Slovakia

The equity of Slovak metallurgical companies grew during the period until 2009. It grew both the share of equity on the total balance and the total amount of equity. Slovak companies have the highest share of equity since 2008 from analyzed countries. This fact is a result of high impact of very large companies with average value of share of equity of 73.5% on the total balance. Other size groups in Slovakia achieved much lower share of Shareholder's funds on the total balance (small companies 36.7%, medium 22.8% and large 27.1%) which correspond with the results of Czech metallurgical companies.

Slovak metallurgical industry used current liabilities less than Czech and Polish firms (average 15.7% with decreasing trend in first four years of time horizon) because of high equity and non-current liabilities. As described above, the index is influenced by very large companies, other companies are comparable especially to Czech companies. As in the Czech Republic, the most important components of current liabilities are Creditors. The share of non-current liabilities on the total balance is highest for Slovak companies in 2006 and 2007. The decrease is caused by great drop of very large companies in 2009 (2008: 26.5%; 2009 7.4%). The decrease of non-current liabilities is compensated by increase of equity, therefore we can assume the liabilities were switched to equity. We are not able to assume, there is an influence of financial crisis. Long-term debt has stronger impact than in other countries.

4. RATIOS

The ratios were calculated using a little bit different population from the basis therefore the result may differ from vertical and horizontal analysis.

Debt-equity ratio

Development of Debt ratio is displayed in **Table 1**. Coming out this analysis Czech companies achieved the lowest indebtedness. Bottom values in Czech Republic and Poland are in 2009, but these were differently influenced by size groups of companies. Lower values in 2009 in Czech Republic are caused primarily by very large companies, which reported lower debt ratio 0.35; other firms in Czech metallurgical industry had much

higher values between 1.0 and 1.5. On the contrary very large companies in Poland show distinctly higher leverage with debt-equity ratio between 1.5 and 2.3. Other size groups achieved values slightly below 1.0.

Table 8 Debt-equity ratio by countries (Author's computations, [10])

Debt-equity ratio	2006	2007	2008	2009	2010
Czech Republic	0.96	0.96	0.96	0.69	0.79
Poland	1.08	1.08	1.17	1.08	1.08
Slovak Republic	1.38	1.33	1.33	1.04	0.64

Development of Slovak metallurgical industry's debt-equity ratio is stable until 2009. Radical decreases in 2009 and especially in 2010 are caused primarily by very large companies with debt-equity ratio 0.69 in 2009 and 0.41 in 2010 as it was shown in chapter 3.3. These companies achieved lower ratio than other size groups of companies, which reported leverage around 2.3 throughout the time horizon. This fact makes Slovak non-very large companies the most indebted firms from all analyzed size groups. Influence of financial crisis on capital structure is clear only in Czech Republic and Slovakia, namely in years 2009 and 2010. In comparison to the proposed debt-equity ratio of 0.55 [7], the companies in all countries were above this value even before the crisis. However, especially Czech and Slovak companies react on the crisis and reduced the value of this ratio.

Interest coverage ratio

Influence of the financial crisis on Interest coverage ratios is clear especially in the years from 2008 to 2010. Year 2009 was the worst one through the crisis for metallurgical industry - in Czech and Slovak Republic were values negative - this was caused because major part of firms reported their EBIT below 0. As this analysis shows, Polish companies do not made loss in the time of financial crisis what can explain. This fact can reveal why Polish companies do not reduce the liability in the time of crisis as visible from chapter 3.2. **Table 2** reveals that the best situation was in Poland albeit the Polish metallurgy was affected by financial crisis as Gajdzik [9] states, Slovak metallurgical industry's problems with financial crisis started already in 2007 and Czech firms were the most affected from all monitored industries. Nonetheless in year 2010 are all industries successfully recovering from consequences of the financial crisis to very optimistic values.

Table 9 Interest coverage ratios by countries (Author's computations, [10])

Interest coverage ratio	2006	2007	2008	2009	2010
Czech Republic	7.01	7.38	2.95	-3.71	7.89
Poland	7.75	9.94	4.47	2.37	7.93
Slovak Republic	6.53	3.6	-0.44	-0.77	7.78

Capitalization ratio

The lowest values are in Czech Republic, where very large companies achieved values slightly above 2%, which are lowest of all size groups and they had the biggest impact on ratio. Development of capitalization ratio is stable, only bigger decrease is in 2009, but it returns to the level before 2009 in last year of the time horizon (see **Table 3**). On the contrary, values in Poland and Slovakia are much higher. Capitalization ratio in Poland is influenced especially by large and very large companies. These achieved values over 10%, similarly to Slovak very large companies, which achieved even 12.41% in 2010. Highest values of ratio in Slovakia were caused primarily by large companies with values over 25% and small companies with about 30%, which are highest values of all size groups in any country.

Table 10 Capitalization ratio (Author's computations, [10])

Capitalization ratio	2006	2007	2008	2009	2010
Czech Republic	4.49%	4.37%	4.21%	3.54%	4.37%
Poland	8.72%	8.31%	12.05%	11.51%	7.87%
Slovak Republic	19.77%	18.20%	17.00%	14.78%	13.99%

Fixed assets to long term capital

Companies should use more long term capital than fixed assets to ensure the stability of their businesses. We are able to express that companies in the analyzed countries meet this criterion. Czech and Polish companies reach this ratio's value of 60 - 70%. Slovak companies are more unstable because the ratio is 70 - 100%, however, they compensate it due to the better debt-equity ratio in last two years. The highest values of ratio were achieved in 2009 in all countries. Polish companies tried to improve the ratio after 2009. Czech companies do not react on the crisis deeply because the ratio does not change rapidly. The trend of Slovak companies shows gradual grow for all the period until 2009. There, analysing the ratio in detail, is visible, that ratio is dependent on the company size in the case of Polish companies, small companies' ratio reaches only 40 - 45% while very large companies 77 - 83% which correspond to the development of debt-equity ratio (large companies have less equity, smaller companies has more equity)..

Inventory to loans

As the metallurgical companies use a lot of material, there should be used short term loans for financing the need of inventory, which should prove to be visible in ratio of inventory to short term loans. Indexes for Czech and Slovak Republic fluctuate without any trend. Nevertheless, the inventory exceeds the value of short term loans rapidly. The index is more stable for Polish companies in common and especially for Polish middle-sized and large companies. Therefore, we are able to draw conclusion that according to indexes only Polish companies would be able to use short term loans for lasting financing of inventory. Czech small companies achieve stable value of ratio but small companies probably do not have administrative ability to use such instruments.

The inventory is for all the companies across analyzed countries about one half of current liabilities. The index increased for Czech and Slovak companies in 2008 indicating the start of financial crisis. The ratio inventory to current liabilities is lower for smaller companies in all analyzed countries.

CAPEX

The index CAPEX measures brutto capital expenditures in comparison to the previous year. There are differences across the countries. Czech companies invested periodically (6 - 23%); in the sub-period 2006 - 2008 was the grow higher, especially in 2008 was CAPEX 23% which correspond to the BCG - Czech companies prepared for the "fat years" which were expected according to the BCG [6]. Slovak companies realized CAPEX in value of -18 - 24%, the decrease started in 2008 (-10%) and continued in decrease in 2009 (-18%) deeply. Index is influenced by very large companies, whose index went down immediately in 2008 (-50%) and continued in 2009 (-19%). We assume that the decrease cannot be caused by quick reaction on the crisis and maybe was influenced by sell of part of company. The CAPEX for Polish companies decreased regularly for all the period; the lowest value was in 2009. Results indicate that the Polish companies were affected by the crisis early and therefore they reduced the CAPEX continuously. Vodová [11] states, the crisis started in 2007 and continued. The analysis of Vodová [11] can be confirmed by our results. The development of CAPEX is supported by the Interest coverage ratio, which shows the gradually decrease of ratio with the lowest value in 2009. The CAPEX index is more stable and regular for smaller companies in all analyzed countries.

CONCLUSIONS

The Czech and Slovak metallurgical industry use high level of equity in their balances - Slovak companies more than 70%, Czech companies more than 60%. Slovak companies use even high non-current liabilities, therefore they use about 80% long term financial sources. However, the results differ in case of particular company size. The results are influenced by very large companies and industrial results are similar to very large companies' results. Smaller Slovak companies are the most indebtedness companies and Czech smaller companies use a lot of liabilities. Polish industry is different - small companies use fewer liabilities, however, large companies are very indebted. Companies with less equity compensate this fact with better level of fixed assets to long-term capital. The equity-debt ratio is, in all countries, higher than the analysis of Ernst & Young [7] forecasts, therefore we can expect the reduction of liability, especially in Poland. Due to the reveals, we can expect changes of ratio fixed assets to long term capital.

As the influence of finance crisis, larger companies reduced the level of current liabilities after outbreak of the crisis and therefore the share of equity grew. Small companies were affected by immediate losses which decrease their equity. The capital expenditures are more stable for smaller companies. Larger companies react on the financial crisis. The influence of financial crisis is visible especially in the Czech Republic. The outbreak of financial crisis appeared in the value of inventories because they break immediately in comparison to the liabilities.

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