The General Performance Assessment of the Polish and Silesian Industry in Time of Crisis[1]

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Abstract

The paper aims at presenting the research findings within the comparative analysis of the financial situation between Polish and Silesian companies with special focus on the industry sector. The authors' applied method involves the set of financial ratios useful in the assessment of the non-financial entities' general performance, including the problem of maintaining the financial balance. The study is based on the financial statement data provided by the Central Polish Statistical Office (the GUS) and covers the period of 2006 as the pre-crisis observation, 2007-2008 as the crisis observations and 2009 as the post-crisis observation. The findings constitute a valuable set of benchmarks that might be a subject for comparison on the individual basis as well as in the cross-national studies, regardless the accounting standards of a particular country.

Key words

financial analysis, financial balance, financial performance, corporate finance

JEL Classification: D22, G32

1. Introduction

The latest financial influenced strongly the world economies, firstly affecting the financial sector and then disturbing the situation of the business entities operating in the real sphere of the economies. Contemporary business entities operate in the complex environment and any changes in their external conditions exert influence on the companies and their performance. The impact of the macro-environment is unavoidable as the company can not change it or influence it. Thus, in time of crisis the financial system (as an important part of the company's environment) had strong direct and indirect effect, creating and expanding turbulences in the crisis transmission process.

The consequences of the financial crisis are expected to be seen in the financial performance of the business entities. In particular, the industry sector is exposed to the negative impact of the financial crisis due to its low level of flexibility and high level of the business risk.

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The prime purpose of this paper is to present the results of the research devoted to the problem of analysing the impact of the financial crisis on the situation of Polish and Silesian companies operating in the industry sector. The research results are presented with regard to the problem of the general performance assessment which is a part of the common-size analysis. With a set of a few financial ratios, the general performance assessment allows to figure out quickly about the worsening or the improvement of the financial balance of a company as a result of capital structure and assets' structure decisions. With regard to the problem of the industry performance, the following hypotheses were tested:

(1) The general financial situation of the Silesian companies operating in the industry was worse as compared to all Polish companies operating in this sector;
(2) The general financial situation of the Silesian companies operating in the industry was worse as compared to all Silesian companies and all Polish companies, regardless the sector belonging;
(3) In time of the global financial crisis, the general financial situation of the Silesian companies operating in the industry was similar to the situation of all Polish companies operating in the industry and all Silesian companies regardless the industry belonging.

The paper is structured as follows. Section 2 describes briefly the research methodology whereas section 3 provides the results of the research. Section 4 discusses the results with regard to the hypotheses tested and the last section concludes the paper.

2. Methodology

The main purpose of the research was to conduct a comparative analysis of the Silesian and Polish companies in general and in the industry sector. The hypotheses tested required to overview the financial performance of companies in the pre- and post-crisis period with regard to their geographical identity and sector belonging. The Silesian Region was chosen to the research due to the increasing attention paid to its autonomy movement, which is discussed in terms of its historical identity and particular economic situation. The Silesian Region is very specific due to high industrialisation. In this region lives 4,6 million persons, which forms 12,2% of the total population of Poland. The leading industrial branches in the Silesian Region are mining, quarrying and manufacturing and 41% of the population is employed in the industry (Śląski Urząd Statystyczny, 2010). Due to the high industrialisation of the Silesian Region, the industry sector was chosen to conduct the analysis aiming at finding the areas of change that might be then tied (and thus explain somehow) to the consequences of the global financial crisis in the real sphere of the economy. As industry sector is characterised by low flexibility and high level of the operating risk, the turbulences in the financial system can be very dangerous for it[5].

The study is based on the application of the financial data gathered on a yearly basis by the Polish Central Statistical Office (GUS, 2007, 2008, 2009, 2010). These data are structured according to various criteria i.e. voivodship or sector belonging, thus they can be used in the analysis conducted in the above mentioned dimensions, that means the geographical identity and sector belonging. Thus, the following four samples of companies were compared in terms of their general performance assessment:

- the MAPP sample, including all companies operating in Poland;

[5] According to the classification applied by the Polish Central Statistical Office, the industry sector includes three branches: (1) mining and quarrying, (2) manufacturing, (3) electricity, gas and water supply (GUS, 2010).

- the MEPP sample, including the companies operating in the Silesian Region
- the MAPP(i) sample; including all Polish companies operating in the industry sector;
- the MEPP(i) sample; including the companies operating in the Silesian Region in the industry sector.

The time horizon of the research covers the period of 2006-2009, as observations in 2006 are treated as the pre-crisis indicators, in 2007 and 2008 as the period of the global financial crisis impact and in 2009 as the post-crisis situation indicators. The cross-section comparative analysis together with the dynamic indices analysis were applied in the studies to support the research objectives and verify the hypotheses tested.

The overall research project aims at analysing the situation of the non-financial companies with the application of the Authors' own method – the CFS Watch (Corporate Financial Situation Watch), created for the purpose to watch the financial performance of the sampled companies over a period of time. The CFS Watch method is based on the financial ratios analysis and uses the information reported in the financial statements of the companies, so it is useful to conduct the ex-post studies. The CFS Watch consists of five analytical modules and this paper aims at presenting the results of the GPA (general performance assessment) module, denoted as GPA(M). The GPA(M) is a set of the following elements:

$$GPA(M) = \left(GPA(1), GPA(2), GPA(3), GPA(4), GPA(5)\right) \text{ and}$$

$$GPA(1) = \frac{FA}{CA},\ GPA(2) = \frac{E}{D},\ GPA(3) = \frac{E}{FA},\ GPA(4) = \frac{D}{CA},\ GPA(5) = \frac{GPA(2)}{GPA(1)} = \frac{GPA(3)}{GPA(4)}$$

where: CA - current assets, FA - fixed assets, E - equity in total, D - debt in total.

Financial ratios applied in the GPA(M) are commonly used to review the overall performance of a company with special regard to its financial balance (Bednarski, Waśniewski, 1996, p.306-312; Damodaran, 2001, p. 105; Micherda, 2004, p.214; Baker, Powell, 2005, p. 52-54; Sierpińska, Jachna, 2007, p. 69-82; Znaniecka, Gorczyńska and Wieczorek-Kosmala, 2008, p. 49-56; Ehrhardt, Brigham, 2009, p. 95; Błach, 2009, p. 85-99). All the ratios included are based on the balance-sheet data. Thus, the GPA module indicates the general characteristics of a company regarding its assets' structure, capital structure, financial balance, financial liquidity and synthetic ratio based on the structure ratios.

The first of the analyzed ratios - GPA(1) - illustrates the assets' structure of a company, shaped by its past investment and operating decisions. It indicates the relative proportion of fixed assets and current assets. If the GPA(1) ratio is higher than 1, it means that the company invested more of the acquired capital in fixed assets than in current assets. This situation is typical for manufacturing companies, in which the proper equipment is required to run the operations. However, higher level of fixed assets may lead to relatively lower flexibility of the company, as it would take more time to modify the company's profile according to the changes in the market conditions. Thus, the high level of the GPA(1) ratio indicates also relatively high level of operating risk.

The next ratio - GPA(2) - reflects the company's capital structure, indicating the sources of funds used by the company to finance its assets. The GPA(2) ratio higher than 1 informs that the company applies more equity capital than debt. In such situation, the capital structure (with regard to debt-equity mix) is treated as relatively stable and safe. The GPA(2) ratio below 1 indicates higher usage of debt, leading to higher level of financial risk.

Both the GPA(1) and the GPA(2) ratios are used in common-size analysis of the company's financial situation, as a part of the assets' and capital structure analysis. The two following ratios – the GPA(3) and the GPA(4) are commonly used to assess the adequacy of

the company's capital structure with regard to its assets' structure. Thus, these ratios match and compare assets with sources of funds.

The GPA(3) ratio is calculated as a relation of equity to fixed assets. Thus, it reflects the extent to which equity is used to finance the company's long-term assets. The situation of the company is regarded as financially stable, if the fixed assets are fully covered with equity. Thus, if the GPA(3) ratio is equal or higher than 1, the company's financial stability is maintained. Also, it reflects the ability to maintain long-term solvency (the risk of insolvency is perceived as low). The minimum acceptable level of the GPA(3) ratio is sometimes defined as 0,5.

The GPA(4) ratio is calculated as the relation of debt to current assets. The GPA(4) ratio provides the complementary information to this springing from the GPA(3) ratio analysis, as it reflects the extent to which debt is applied to finance current assets. Taking into account the interpretation of the GPA(3), it should be lower than 1 to assess the company as solvent in the long-term. The GPA(4) ratio higher than 1 indicates potential problems that may occur in the situation, in which part of the company's fixed assets would be financed by the short-term liabilities, and as a consequence the insolvency risk and liquidity risk would be increased.

The GPA(5) ratio is calculated either as the relation of the GPA(2 and GPA(1) or the relation of the GPA(3) to GPA(4). This ratio forms a synthetic measure of a company's financial stability. Considering the required level of the GPA(3) and the GPA(4) ratio, the GPA(5) ratio should be higher than 1. The positive dynamic index for the GPA(5) ratio indicates the improvement of the company's financial condition and financial balance.

The ratios in the set GPA(M) are analysed with regard to their worsening or improvement over the time. The GPA(M) watches primarily the financial balance in the context of long-term solvency which becomes particularly important in times of the increasing volatility of the business environment and turbulences in the financial system.

3. Results

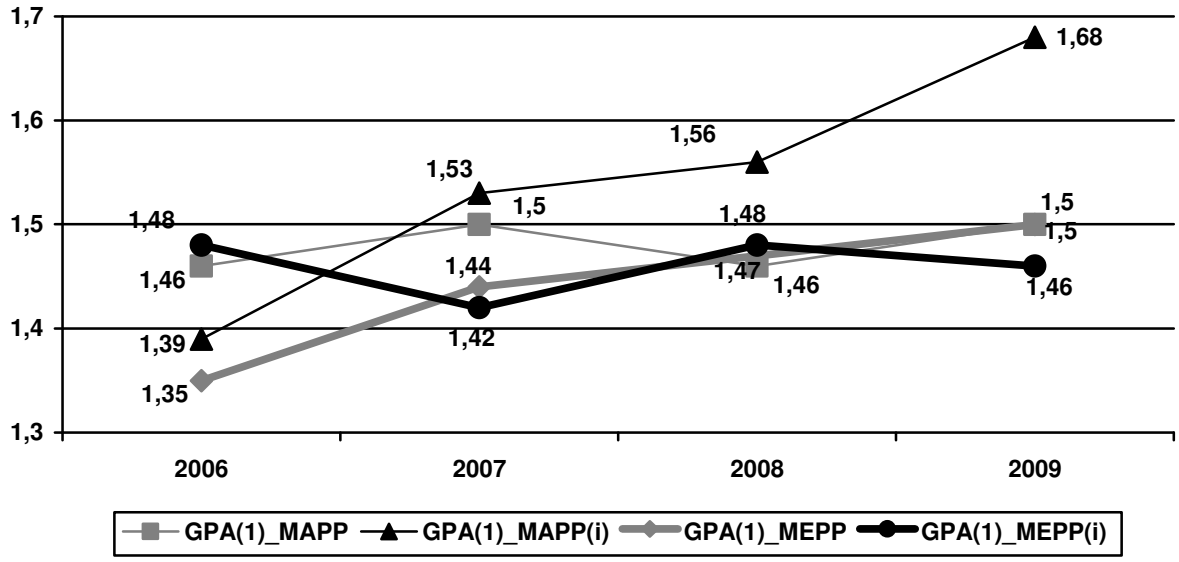
As mentioned above, the GPA(M) is designed to observe the changes of the general financial situation in terms of maintaining financial balance of analysed samples of companies. The module computations are based on the set of basic balance-sheet data presented in Annex in Table 1 to 4. Each of the analysed ratios included in the structure of the GPA(M) was calculated for the four tested samples of companies: MAPP, MEPP, MAPP(i) and MEPP(i) and then compared.

The results of the GPA(1) ratio are presented in fig. 1. The average values for GPA(1) ratio for all Polish companies illustrated by the GPA(1)_MAPP ratios were fluctuating in the analysed period from 1,46 in 2006 and 2008 to 1,50 in 2007 and 2009. The value of the GPA(1) ratio for the Silesian companies was increasing over a period of time from the minimum level of 1,35 in 2006 to 1,50 in 2009. The average value for the industry sector in Poland was also increasing from 1,39 in 2006 to 1,68 in 2009, resulting in the maximum level in the analysed samples of the companies. The values of the GPA(1) ratios for the Silesian industry reached the highest level in 2006 and 2008 – 1,48 and the minimum value in 2007 – 1,42.

All results for the GPA(1) ratios are higher than 1 indicating the higher level of the fixed assets as compared to the current assets. Also, it indicates the higher level of the business risk and the lower flexibility of a company. In 2006 the highest level of operating risk and the lowest level of flexibility was observed in Silesian companies operating in the industry sector, while the lowest level of the GPA(1) ratio was observed for all Silesian companies. In 2007 the situation changed and the highest level of the GPA(1) ratio was observed in the Polish

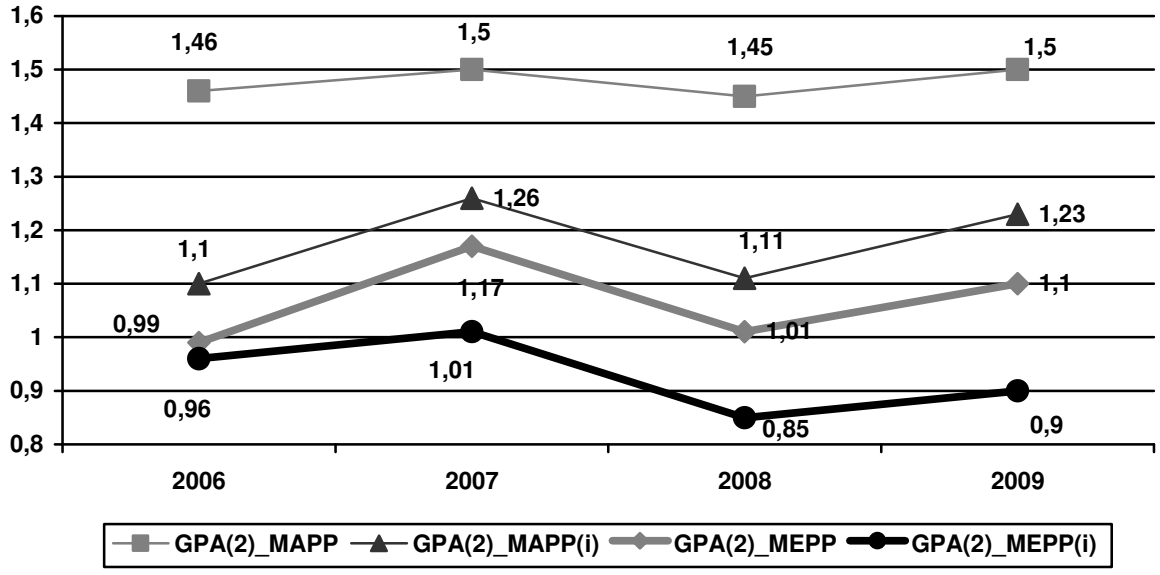
industrial companies. Similar results were achieved in 2008 and 2009. In 2007 and 2008 the lowest level of the operating risk was observed in Silesian industrial companies, and in 2008 – in all Polish companies.

Figure 1: The GPA(1) ratios for the analysed samples of companies in 2006-2009



The results of GPA(2) ratio for all examined samples of companies follow the similar tendencies (compare fig.2). The lowest level of the ratio, in each sample of companies (excluded MEPP(i)) was reached in 2006 with the values ca. 1 (with the exception of all Polish companies, were the ratio was significantly higher with values of ca. 1,5). The increase in 2007 was followed by the decrease in 2008 and then the increase in 2009. The highest level of the GPA(2) ratio in all sampled companies was observed in 2007, indicating the highest debt coverage by the equity capital which signals the lowest level of the financial risk.

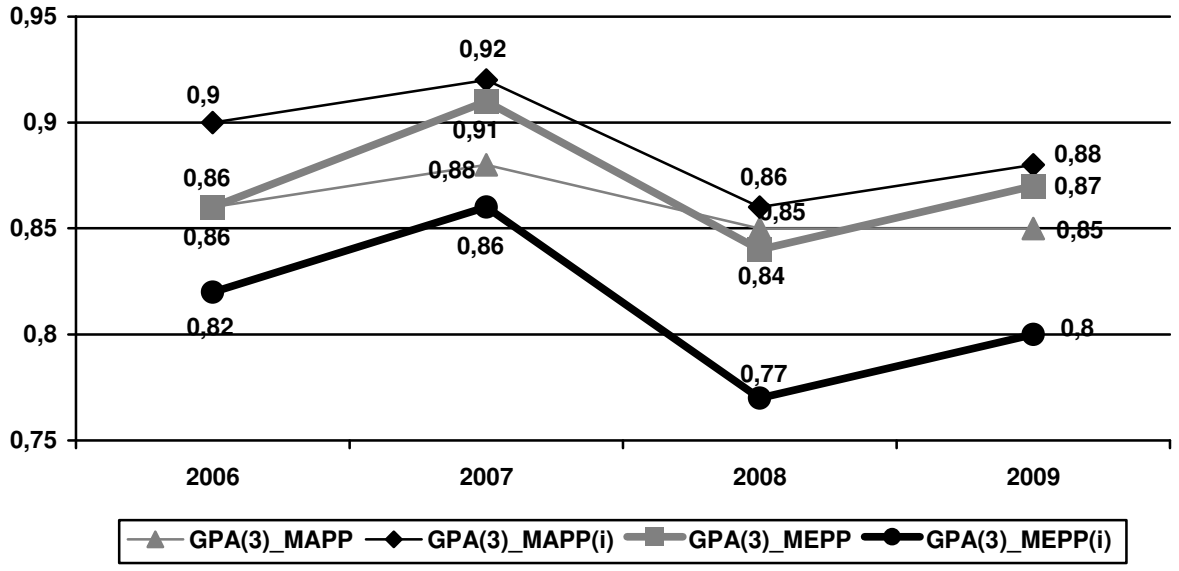
Figure 2: The GPA(2) ratios for the analysed samples of companies in 2006-2009



With regard to the results of all analysed samples of companies it should be mentioned that the highest level of the financial risk was observed in case of the Silesian industrial companies, as in 2006, 2008 and 2009 the debt capital was higher than equity (the GPA(2) ratios was between 0,85 in 2008 and 0,96 in 2006). In case of all Silesian companies such situation took place only in one year – 2006 (with the GPA(2) ratio equal to 0,99). In two remaining samples of companies (MAPP and MAPP(i)), the ratio was always higher than 1 which indicates the preference for the equity capital as a source of corporate funds. The situation of the MAPP companies can be assessed as the safest one regarding the highest values of the GPA(2) ratio (which was fluctuating from 1,45 in 2008 to 1,50 in 2007 and 2009).

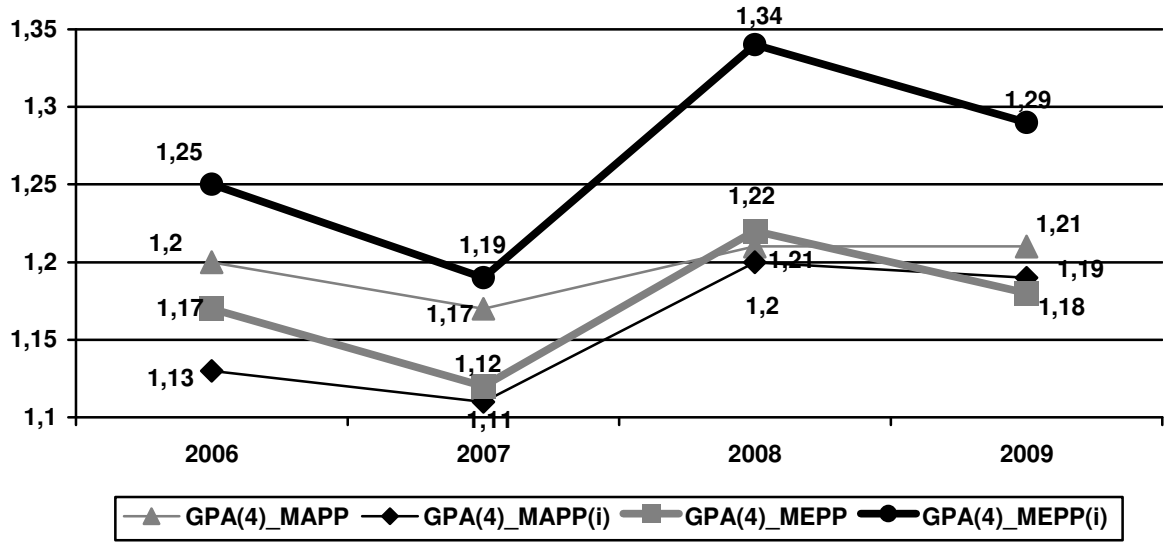
The results for the GPA(3) ratio were fluctuating over a period of time in all four samples of examined companies with similar tendency (compare fig. 3). The highest ratios were observed in 2007, and the lowest in 2008 which is similar to the changes observed in the GPA(2) ratio values. The results for the analysed samples of the companies were comparable, indicating similar policy of financing fixed assets by the equity capital. It should be stressed that in none group of the companies, the ratio reached values higher than 1. This means, that from 23% (in 2008 in MEPP(i) companies) to 8% (in 2007 in MAPP(i) companies) of the fixed asset were financed by the debt capital (either short- or long-term). The highest values of the GPA(3) ratio were observed in case of the MAPP(i) sample of companies, indicating the best situation in terms of the financial balance and the long-term stability of the company (the GPA(3) ratio was ranging from 0,86 in 2008 to 0,92 in 2007). On the contrary, the lowest values were observed in the Silesian industry companies (ranging from 0,77 in 2008 to 0,82 in 2007), signalling the highest needs for the debt capital to finance fixed assets, which may result in the lack of the financial balance and may lead even to insolvency.

Figure 3: The GPA(3) ratios for the analysed samples of companies in 2006-2009



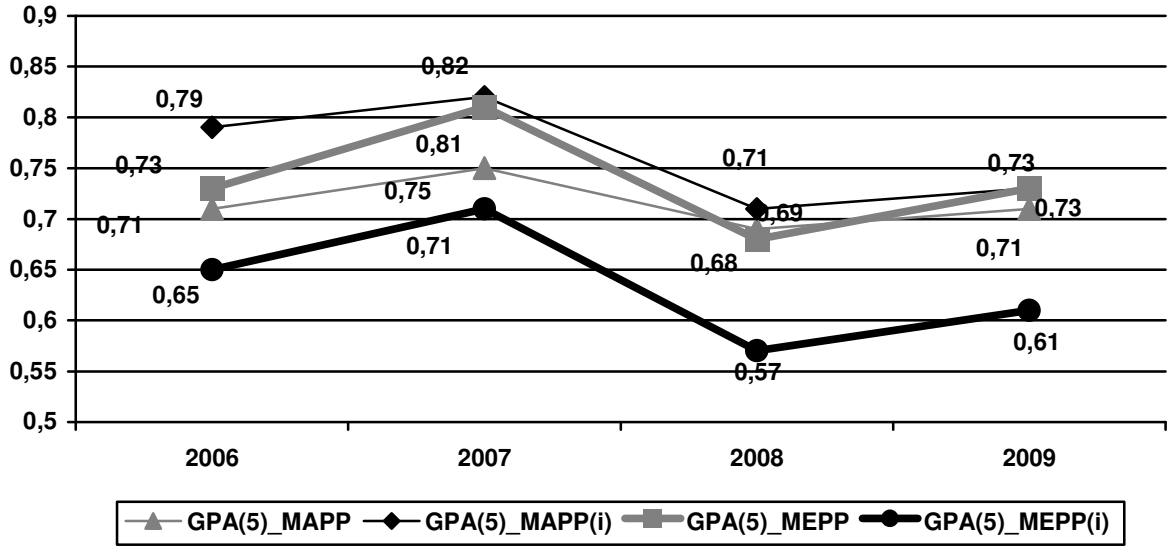
The GPA(4) ratio provides complementary information to this obtained by the analysis of the GPA(3). In all four groups of companies similar fluctuations were observed – slight decrease in 2007, significant increase in 2008 and once again small decrease in 2009 (as presented in fig. 4). But the results for 2009 are higher as compared to 2006, which indicates higher level of debt finance used to cover current assets.

Figure 4: The GPA(4) ratios for the analysed samples of companies in 2006-2009



The values of these GPA(4) ratios, in all examined samples of companies, in the whole period were higher than 1, which means that debt capital financed not only current assets, but also part of the fixed assets. This situation, as it was mentioned above, may lead to the problems with long-term stability of the company, in case of the difficulties in obtaining additional sources of the long-term debt resulting in the necessity of using short-term liabilities to finance fixed assets. Taking into account these potential problems, the best situation was observed in Polish companies operating in the industry sector, as the GPA(3) ratio reached the lowest level (from 1,11 in 2007 to 1,2 in 2008). And the worst situation was observed in Silesian industrial companies which reinforces the conclusion received by the analysis of the GPA(3) ratio (as the GPA(4) ratio was fluctuating from 1,19in 2007 to 1,34 in 2008).

Figure 5: The GPA(5) ratios for the analysed samples of companies in 2006-2009



In case of the GPA(5) ratios results (provided in fig. 5), the fluctuation of the values can be observed with the slightly decreasing tendency, as the results in 2009 were not only lower as

compared to 2007 but also to 2006. Thus, the changes in the GPA(5) ratio inform about the deterioration of the financial situation of the analysed samples of companies. Regarding the results for the GPA(5) ratio, the best situation was observed in 2007 and the worst in 2008. Taking into account the analysed groups of companies, the best results were achieved in case of the Polish industrial companies (as the GPA(5) ratio was ranging from 0,71 in 2008 to 0,82 in 2007) and the worst by the Silesian industrial companies (as the GPA(5) ratio was fluctuating from 0,57 in 2008 to 0,71 in 2007).

4. Discussion and conclusions

As mentioned previously, the study aimed at testing three plausible hypotheses about the general performance of Silesian companies operating in the industry as compared to all Polish and all Silesian companies. The study found partial support to the first hypothesis and convincing evidence to the second and the third one.

With regard to the first hypothesis about the worse situation of Silesian companies operating in the industry as compared to all Polish companies operating in this sector, a partial evidence was found. The synthetic ratio of the financial performance (GPA(5)) indicate that the situation of Silesian industry companies was significantly worse as compared to all Polish industrial companies as the ratio was on the lower level. The analysis of the particular structure ratios indicates that the situation of Silesian industry was worse with regard to the capital structure (GPA(2)) indicating higher financial risk. Also, the correctness of the capital structure to the assets structure (GPA(3) and GPA(4)) indicated worse financial balance. However, the assets' structure (GPA(1)) analysis indicates higher flexibility and lower business risk of Silesian industrial companies as compared to the Polish industrial companies.

With regard to the second hypothesis about the worse financial situation of the Silesian industrial companies as compared to all Silesian and all Polish companies, the convincing evidence was found. In all of analysed parameters, including the synthetic ratio of the financial stability, the Silesian industrial companies achieved worse results. In case of the assets' structure, however, this tendency was the weakest (as the GPA(1) ratios were on the comparable level and were fluctuating more slightly).

With regard to the third hypothesis about the similarities of the changes of the general financial situation between the Silesian industrial companies, the Polish industrial companies and all Silesian companies, the convincing evidence was found. In all of the analysed ratios (in particular GPA(2), GPA(3), GPA(4) and GPA(5)) the observations followed the same trend, indicating the worsening in 2008 and then the slight improvement in 2009.

The presented study provides original set of data that might be further used in other comparative studies. The results form the base of benchmarks for the situation of individual businesses (operating in Poland or in Silesian Region) as well as for the cross-national analysis. The ratios that form the GPA(M) set of data are based on the financial data presented in the balance-sheet, regardless the accounting standards followed in particular countries. Also, the GPA(M) might be easily extended with other ratios. Its prime advantage, however, is the simplicity and clearness in the judgments about the worsening or improvement of the general financial performance of the non-financial companies.

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Annex.

Item	The MAPP sample				The MEPP sample			
	2006	**2007**	**2008**	**2009**	**2006**	**2007**	**2008**	**2009**
Fixed assets	865,38	1 038,37	1 127,08	1 192,96	99,28	125,78	132,74	139,65
Current assets	591, 93	690,43	773,44	794,62	73,74	87,20	90,51	93,24
Equity	744 ,41	918,90	959,24	1 025,19	86,26	115,00	112,26	122,09
Debt in total	712, 89	809,89	941,28	962,39	86,76	97,98	110,99	110,80

Table 1: Financial statement items for all companies operating in Poland (the MAPP sample) and in Silesian Region (the MEPP sample) in billions of PLN.

Item	The MAPP(i) sample				The MEPP(i) sample			
	2006	**2007**	**2008**	**2009**	**2006**	**2007**	**2008**	**2009**
Fixed assets	394,53	493,16	542,43	579,95	71,51	81,55	86,18	84,68
Current assets	283,76	323,18	348,40	345,41	48,36	57,59	58,05	58,04
Equity	355,33	456,16	469,81	510,91	58,97	70,19	66,39	67,78
Debt in total	322,96	360,18	421,02	414,45	60,90	68,95	77,84	74,94

Table 2: Financial statement items for all companies operating in the industry sector in Poland (the MAPP(i) sample) and in Silesian Region (the MEPP(i) sample) in billions of PLN

Item	The MAPP sample			The MEPP sample		
	2007/2006	**2008/2007**	**2009/2008**	**2007/2006**	**2008/2007**	**2009/2008**
Fixed assets	20%	9%	6%	27%	6%	5%
Current assets	17%	12%	3%	18%	4%	3%
Equity	23%	4%	7%	33%	-2%	9%
Debt in total	14%	16%	2%	13%	13%	0%

Table 3: Dynamic indices for the balance-sheet items for all companies operating in Poland (the MAPP sample) and in Silesian Region (the MEPP sample).

Item	The MAPP(i) sample			The MEPP sample		
	2007/2006	**2008/2007**	**2009/2008**	**2007/2006**	**2008/2007**	**2009/2008**
Fixed assets	25%	10%	7%	14%	6%	-2%
Current assets	14%	8%	-1%	19%	1%	0%
Equity	28%	3%	9%	19%	-5%	2%
Debt in total	12%	17%	-2%	13%	13%	-4%

Table 4: Dynamic indices for the balance-sheet items for all companies operating in the industry sector in Poland (the MAPP(i) sample) and in Silesian Region (the MEPP(i) sample).