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CHANGING ACTIVITY IN THE CONSTRUCTION SECTOR IN SELECTED STATES 2003-2012

RAFAŁ WOLSKI¹, MAGDALENA ZAŁĘCZNA²

Abstract

Construction companies are important economic actors in every country. Their activity translates into employment levels, tax revenues, and the provision of new spaces that require further expenditure on equipment, thus stimulating consumer spending. The activity of construction companies depends on the demand for space, the state of the economy and the financial market. Undoubtedly economic disturbances in the form of a recession have a significant impact on construction activity. The authors were interested in whether the boom and recession in the selected countries were similarly reflected in the activity of construction companies. In particular, they were interested in residential construction activity, although it was not possible to select companies that would only deal with residential construction. The authors selected four post-socialist countries and two countries which are called winners of the integration process due to their enormous economic growth. The authors outline the residential construction and construction sector results and activity in the Czech Republic, Poland, Slovakia, Hungary, Spain and Ireland, and draw a wider picture for analyses of construction companies' financial results for the years 2003-2012. This period was chosen because it covered periods of both boom and bust. All enterprises were part of the sector denoted in the Amadeus database as primary code: Eurostat NACE Rev. 2 with codes: 41 - Construction of buildings: 4110 - Development of building projects, 4120 - Construction of residential and non-residential buildings. Due to the specificity of the construction sector the authors divided the surveyed enterprises into two groups – all companies; and only large and very large companies. It was not possible to separate data specifically with respect to residential construction companies.

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Keywords: construction companies; residential real estate; profitability

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INTRODUCTION

The economy is subjected to periodical changes which are reflected in the financial situation of both households and companies. The construction sector is an important part of the economy, not only having an impact on the entire economy but also being under the influence of business cycles. In some countries the increased activity of the construction sector, significantly involved in the residential market, played an important role in the last boom. These countries include Ireland, Spain and Cyprus, and among the post-socialist states – the Baltic States and Croatia (Sun, Mitra & Simone, 2013). Residential markets started to be perceived globally as an area for investments (Tsatsaronis & Haibin, 2004; Beblavy, Cobham & Odor, 2011). The increase in demand and the lag in supply was reflected by an increase in prices, which confirmed the conviction that investments in the residential market were profitable (Dokko et al., 2011). This has contributed to the intensification of construction activity.

In this article we hypothesize that the crisis affected the financial condition of the companies, reducing their value, liquidity and profitability. The decline in GDP, treated as a barometer of the economic situation, is reflected in a reduction of activity and financial resources of enterprises, including construction companies. In addition, underlining the importance of the residential markets in the economies, the authors analysed changes in prices and construction activity.

When analysing the collected data, it should be noted that on the eve of the crisis, in 2007, according to Eurostat data the construction sector of the EU states gave employment to 14.8 million workers (11.5% of persons employed in non-financial sectors) and provided EUR 562 billion in value added (9.3% of total value added attributable to the non-financial sectors). However, after a period of revival, construction activity died down due to the economic crisis. In individual EU Member States, the problems of the construction sector were particularly apparent in, among others, Spain, the Baltic States and Ireland. The knock-on effect in the form of the significant reduction of employment in the construction sector, bankruptcies of developers, decrease of employment in banks due to the significant reduction of loans granted, increased the economic problems (Stawinska, 2010). The largest part of the sector, concerning the construction of buildings, clearly felt the effects of the crisis – comparison

of the beginning of 2007 and the beginning of 2010 indicates a drop in activity by 16.5%.

General data do not present the real picture of individual companies' results. It is essential to analyze the performance of enterprises, together with activity in both the residential market and the entire construction industry's results to understand the processes in individual countries.

CONSTRUCTION ACTIVITY IN RESIDENTIAL MARKETS IN THE STUDIED COUNTRIES

In some countries the residential construction boom was enormous, owing to the rapid growth of household wealth, the availability of credit, and housing needs. Such countries included Spain and Ireland. Some investors hoped and predicted that rapid and strong increase in residential prices would be reflected in the post-socialist states known as “catching-up” countries. However, the economic situation in real estate markets depends both on global and local factors, external in relation to real estate markets, and those resulting from their very nature (Egert & Mihaljek, 2007; Leamer, 2007; Girouard, Kennedy, Van Den Noord & Christophe, 2006). The real differences between the conditions of economic development and residential markets in Spain or Ireland and the post-socialist states can be seen in the scale of reaction with respect to new construction and price changes. The studied post-socialist countries experienced a revival in housing construction, however an analysis of the numbers of residential units handed over for occupation does not indicate a boom.

In 2003, just prior to its accession to the EU, in the Czech Republic 27,000 residential units were handed over for occupation, of which 7,700 were in multi-residential buildings. The peak period occurred in 2007, when the construction of over 41,000 residential units was completed, of which 17,000 were in multi-residential buildings. The revival lasted for another three years (which was probably a consequence of the completion of previously begun investments), and the effects of the downturn were clearly visible in 2011 when 28,600 residential units were turned over for occupation, including 6,500 in multi-residential buildings. In the years 2003-2012 335.4 thousand of new residential units were put to use in total.

The changes of prices in the residential real estate market indicate that the peak moment occurred in 2007, when prices increased on average by 30%, and the most significant decrease took place in 2009, and in addition the market did not rebound in the following years.

In Poland, after 2003 when the number of residential units handed over for occupation was artificially overstated, stable growth of new residential units could be observed, and it peaked in 2008 when 165,000 residential units were delivered. In the years 2010 and 2011, a downward trend could be observed, which was reversed in 2012. In the years 2003-2012 there were 1,378.8 thousand of new residential units put to use. The segment of flats constructed by developers had a significant share in the revival in the primary residential market.

The entire residential market experienced the economic boom and the change in prices. The analysis of these changes clearly points to the year 2006 as the time of the most dynamic increases – about 80%. Due to the financial crisis a slowdown in construction activity was noticed. While the declines in prices in the following years were not huge, nonetheless they showed traits of a lasting trend, which probably affected the investment decisions made.

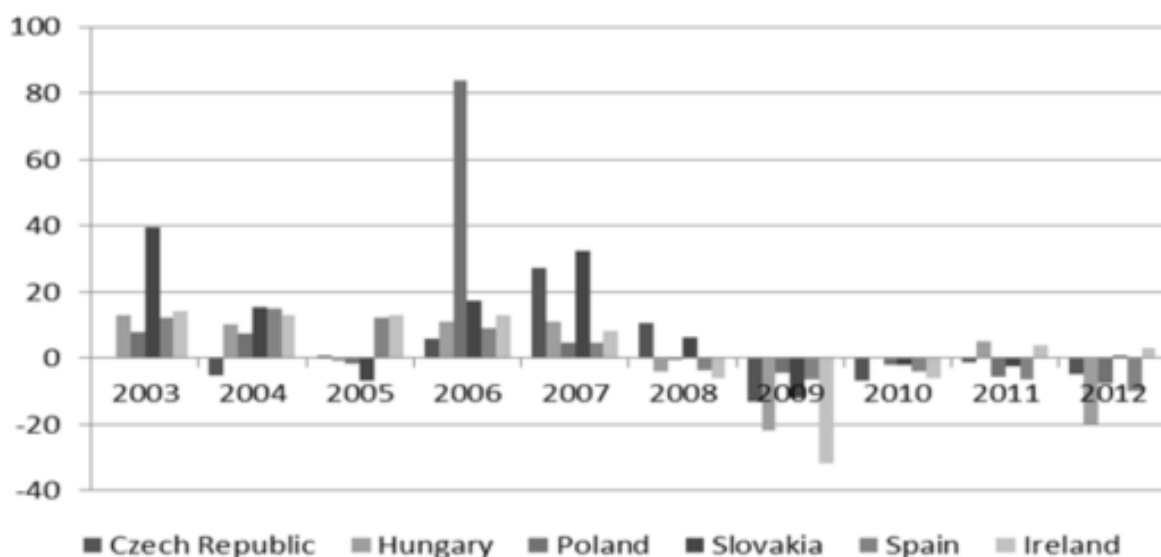
Moderate activity in residential construction was observed in Slovakia in the years 2003-2012. After increases in the number of residential units handed over for occupation, the peak year took place in 2009 when almost 19,000 flats and houses were delivered, whereas

in 2003 the number was 14,000. In the following years, a smaller number of residential units were delivered, but the level of 14,000-15,000 was maintained. There were 155.3 thousand of new residential units constructed in the years 2003-2012 in total.

Changes in the prices of residential units indicate moderate increases during the revival period, however their scale depends on the type of the housing. Decreases in prices were the strongest in 2009, followed by years of stagnation.

Only in Hungary can one observe the tendency toward a permanent reduction of activity in the primary residential market after the financial crises. What is more interesting, the period of the highest activity was clearly visible in the years 2004-2005 when over 40,000 flats and houses were delivered each year. In the years 2006-2009, over 30,000 residential units a year were delivered, whereas in the subsequent years construction activity significantly decreased, and in 2012 only 10,500 residential units were delivered. Enterprises decreased the number of new residential units from over 18,000 in 2005 to just 3,000 in 2012. In the years 2003-2012 there were 302.6 thousand of new residential units put to use in total. The changes in prices in the Hungarian market were not similar to those described above. Strong decreases were recorded in 2009, and they continued in 2012. It may be said on the basis of the analysis conducted that this market experienced the most economic problems among the countries surveyed – see Figure 1.

Figure 1: Change of prices of residential units in surveyed countries



Source: Own study based on data from National Central Banks

After joining the EU Spain and Ireland developed moderately until the second part of the 1990s when they jumped from the position of catching-up countries to the status of winners. Their economic growth was also produced by the construction activity in residential markets. In small Ireland in 2006 more than 93 thousand new residential units were constructed, in the period 2003-2012 there were 508 thousand new flats and houses produced. In Spain only in 2006 there were put to use 737 thousand new residential units and in the whole surveyed period: 4,328 thousand. When the financial crises came, a strong decrease was observed, even a kind of collapse of construction activity. In Ireland in 2012 only 8 thousand new residential units were constructed, in Spain 80 thousand. The deep decline in prices was also a sign of recession – see Figure 1.

CONDITION OF THE CONSTRUCTION SECTOR IN THE STUDIED STATES

The relationship between the economic situation and the condition of the construction sector can be seen via several factors: share of the sector in generation of GDP, number and structure of construction companies, value of construction output, and number of employees.

Analysis of the share of the construction sector in the generation of GDP in the countries covered by the study in the years 2007, 2009 and 2012 allows us to state that Poland is the only country in which this sector strengthened its position – cf. Figure 2. The scale

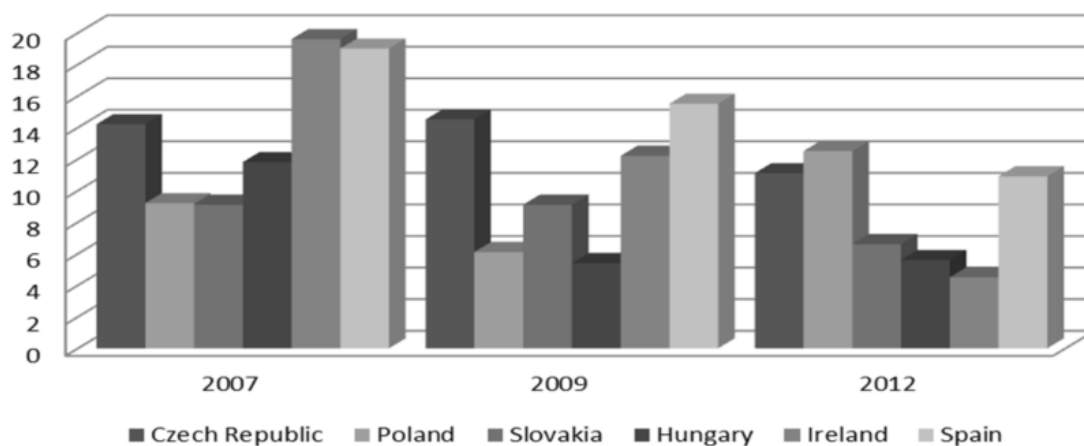
of changes should be noted – in Poland the increase was from 9.2% to 12.5% (after a drop to 6.1% in 2009). In the Czech Republic, the share of the construction sector in the GDP dropped from 14.5% to 11.1%. The share in relevance of the construction sector also decreased in Slovakia – from 9.1% to 6.6%, and in Hungary – from 11.8% to 5.6%. The most dramatic case is Ireland with a drastic drop from 19.6% to 4.5%.

The specificity of the construction sector structure in the countries studied is the fact that a great majority of enterprises in this sector are small entities, employing up to 9 people. Eurostat data enables us to see the differences between countries. Slovakia stands out among the countries analysed, as from 2010 it noted a huge increase in the number of construction companies; however, this increase was distorted by the change in the method of counting construction companies which took place at the level of domestic statistics.

The study of the structure of construction companies indicates that in the previous years in Hungary the concentration of the smallest entities employing up to 9 persons was not as strong, however it should be kept in mind that in the Czech Republic and in Poland over 95% of construction companies were small.

Ireland provides an example of a significant increase in the number of construction companies, however their total number comparing with the rest of the studied states is the smallest. After the construction boom the number of companies dropped significantly. Spain had the highest number of construction companies, even though the total number declined to about 300 thousand in 2012.

Figure 2: Share of the construction sector in the generation of GDP in selected countries (%)



Source: Own study based on data from the European Construction Industry Federation

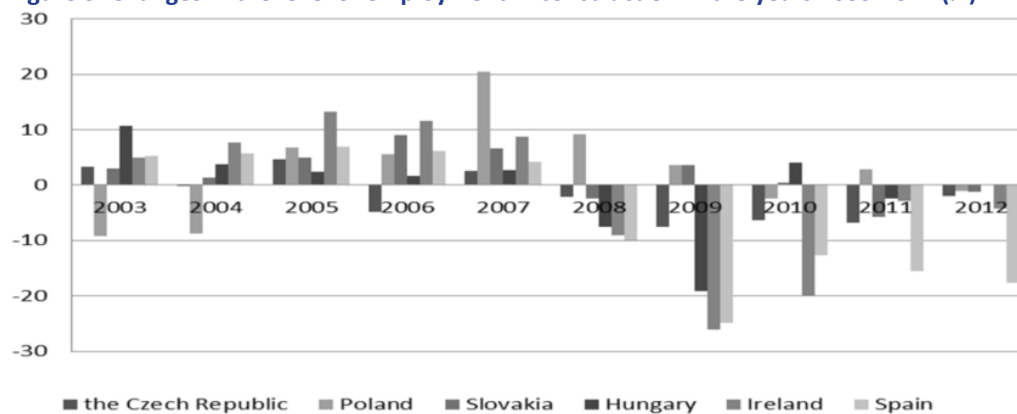
When analysing the changes in the number of construction companies in the years 2003-2012 it should be noted that a tendency to decrease appeared in every surveyed country after 2008. A similar situation may be observed with regard to a narrower category of entities – constructing mainly buildings. In the Czech Republic their number visibly decreased in 2011, and in Poland – in 2009, similarly as in Hungary. A decline in the number of these companies was also visible in Ireland, but in Spain the number of such companies increased in 2010 and thereafter the trend was similar to the rest of the surveyed countries.

The changes in the number of enterprises do not overlap with the picture obtained from the analysis of the number of people employed in the construction sector. Until 2007, an increase could be observed, albeit at different levels in the countries studied – Poland stood

out significantly. From 2008, a reduction of employment took place, and the Polish construction sector experienced this to the least degree, whereas the reaction in Ireland and Spain was the strongest, as employment in the construction sector fell there by about 25% in 2009, cf. Figure 3.

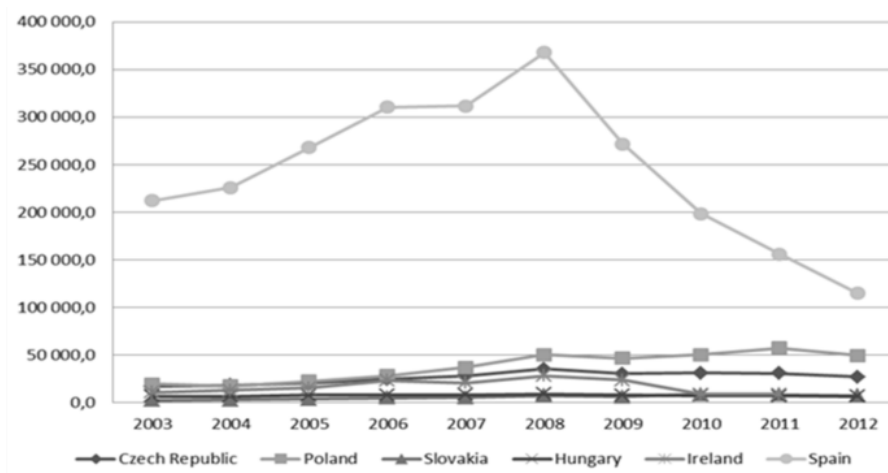
The impact of the economic downturn was also apparent in the value of construction output, albeit to different degrees. Analysis of the national data indicates three states in which the year 2008 was a peak year in terms of the value of construction output – these were Spain, the Czech Republic and Hungary, cf. Figure 4. In the Czech Republic in 2009 a drop in the value of construction output was observed, but it did not deepen in the following years. The situation was different in Hungary, where a downwards trend was clearly observed throughout the period. The most dramatic change was in

Figure 3: Changes in the level of employment in construction in the years 2003-2012 (%)



Source: Own study based on data from the European Construction Industry Federation

Figure 4: Value of construction output in the years 2003-2012 (EUR million)



Source: Own study based on the Eurostat data

Spain – after the increase in 2008, there was a constant and very significant drop.

In Slovakia, after a one-off drop in the value of construction output in 2009, an increase took place in 2010, followed by stabilisation in the following years. Poland was the only state which, after a reduction in the value of construction output in 2009, recorded an increase in the following years.

When analysing the data in a more detailed way by referring to the value of output with regard to the construction of buildings, it should be noted that in the Czech Republic and in Hungary this part of the construction sector reflected the general tendencies. In Slovakia, however, no increase in the construction output with regard to construction of buildings was observed – despite the trend observed on the basis of the activity of the entire sector. In Poland, the increase of the value of construction output with regard to construction of buildings was very slight. The situation in Ireland and Spain is different as there is a strong drop – in Spain the value decreased from 122.8 billion EUR (2008) to 39.2 billion EUR (2012), and in Ireland from 13 billion EUR (2008) to 2.6 billion EUR (2011).

THE FINANCIAL CONDITIONS OF CONSTRUCTION COMPANIES IN THE STUDIED COUNTRIES

After obtaining the picture of residential construction activity and the construction sector, we analysed the financial conditions of selected construction companies. The research hypothesis was set up as follows: the crisis affected the financial condition of the companies, reducing their value, liquidity and profitability.

For our analysis a number of selected financial ratios and balance sheet items were chosen, ranging from current assets, total assets, profit or loss after tax, EBITDA, liquidity ratio, asset-based solvency ratio, ending with ROE and ROA using net income. In addition, further testing was performed on the GDP for each examined country at market prices, at current prices, millions of euro and real GDP growth rate - volume percentage change from the previous year. Situation of construction companies can be sometimes used as a barometer of economic situation

of the country measuring among others correlation between economic indicators (Nunes, Lopes, Balsa, 2011; Kargi, 2013). The authors inspired inter alia by the work of Guenther and Young (2000) decided to reverse

the situation and check how the economic situation reflects the condition of construction companies.

Data

The study used a database of companies collected as Eurostat NACE Rev. 2 - statistical classification of economic activities in the European Community with codes: 41 - Construction of buildings: 4110 - Development of building projects, 4120 - Construction of residential and non-residential buildings.

Two databases were created: One for 130,800 companies of every size, in which 5,416 were from Czech Republic, 7,927 from Poland, 2,798 from Slovakia, 15,385 from Hungary, 7,900 from Ireland and 91,374 from Spain; and one for 3,905 large and very large companies¹, with 163 companies from Czech Republic, 2,893 companies from Spain, 75 from Hungary, 84 from Ireland, 646 from Poland and 44 from Slovakia. It is worth noting that compared to the total number of construction companies in the surveyed countries, these are only a part of the sector. These are only the companies which sent financial data to the collecting offices, while the remaining part did not fulfill this obligation.

The research period covered the years from 2003 to 2012. For each country the median values were calculated separately, and further examined when the indicator concerned each individual country. All financial data are derived from the Amadeus database. Data on GDP at market prices, denominated in euros, are derived from the Eurostat database.

1 With respect to the criteria of selecting companies by size, we cite the Amadeus database: “[A] company’s size category is determined by annual turnover, total assets or total number of employees for the last available year. Companies on Amadeus are considered to be very large when they match at least one of the following conditions: operating revenue \geq 100 million EUR, total assets \geq 200 million EUR, employees \geq 1,000. Companies with ratios operating revenue per employee or total assets per employee below 100 EUR are excluded from this category. Companies for which operating revenue, total assets and employees are unknown but have a level of capital over 5 million EUR are also included in the category.”

Companies on Amadeus are considered to be large when they match at least one of the following conditions: operating revenue \geq 10 million EUR, total assets \geq 20 million EUR, employees \geq 150. Companies with ratios operating revenue per employee or total assets per employee below 100 EUR are excluded from this category. Companies for which operating revenue, total assets and employees are unknown but have a level of capital comprised between 500 thousand EUR and 5 million EUR are also included in the category.”

RESULTS

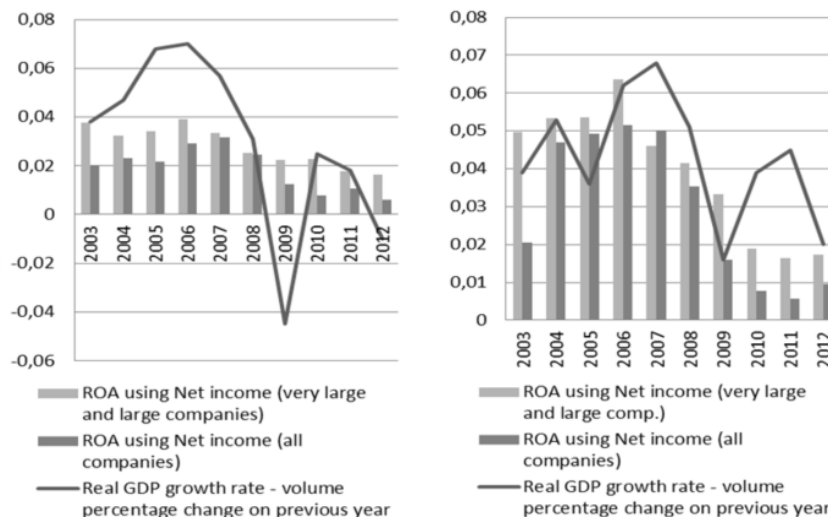
Analysis of the situation in the sector began with verification of the changes in the level of the assets median in all companies, and in the large and very large companies. As shown in the accompanying Figures 5 to 10 a pattern exists, according to which the sector functions. However, one regularity draws attention. In almost all of the countries - with the exception of Ireland, large and very large companies have better overcome the crisis.

Regarding all companies, it appears that the addition to the database of small and medium-sized companies results in a decline of average values of total assets in the surveyed period. For example, in the Czech Republic

average assets of all companies drop six times, whereas the median of total assets for large and very large companies drops twice in the examined period. In other countries the situation is quite similar: in Ireland it is a drop of six and five times (all, and large and very large companies), in Spain five vs three, in Hungary six vs two, in Poland five vs one, and in Slovakia eight vs one.

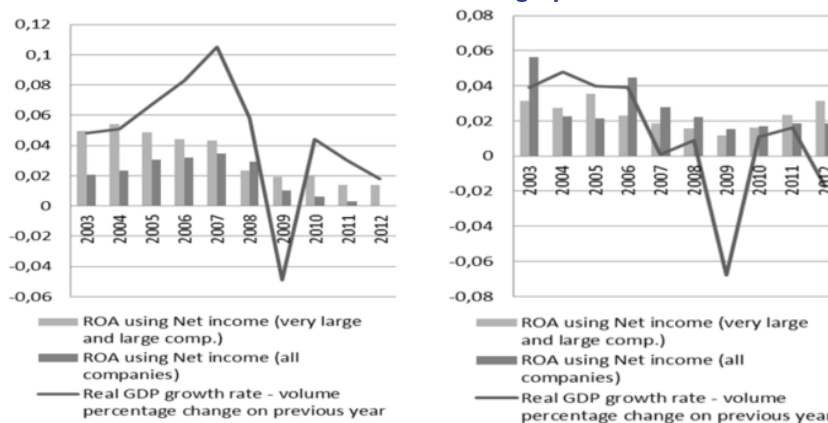
In order to achieve our research goal, a series of analyses were performed, allowing for diagnosis of how the economic conditions affected the performance of companies related to the construction sector. Correlation analysis covered the positions of GDP and the subsequent balance sheet, or income statement. In the case of fixed assets in all construction companies in Hungary, Poland

Figures 5 and 6: Changes in the level of the assets median in all companies and in the large and very large companies in the Czech Republic and Poland



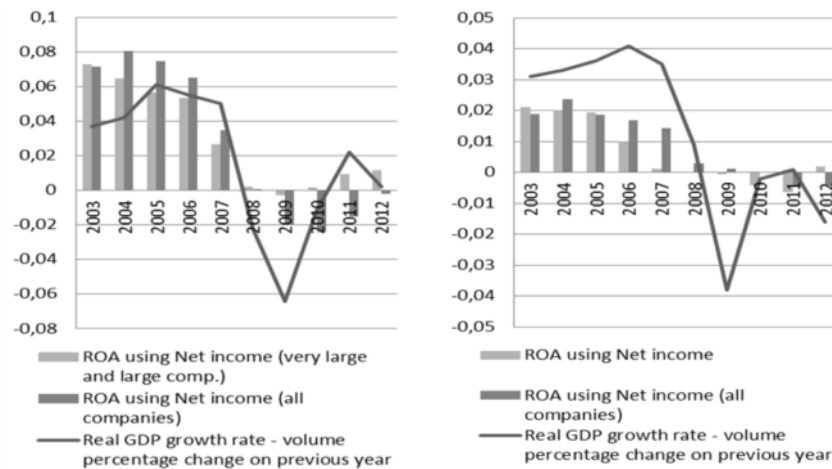
Source: own study based on the Amadeus database

Figures 7 and 8: Changes in the level of the assets median in all companies and in the large and very large companies in Slovakia and Hungary



Source: own study based on the Amadeus database

Figures 9 and 10: Changes in the level of the assets median in all companies and very large and large companies in Ireland and Spain



Source: own study based on the Amadeus database

and Slovakia the relationship was statistically significant and negative. However, in the case of total assets in these three countries a negative relationship was shown, but in the case of Hungary it was not statistically significant. For other countries, assets were positively correlated, but statistically insignificant. However, all countries recorded negative correlation profit expressed by profit/loss after taxes or EBITDA. However, in three countries, Hungary, Poland (except EBITDA) and in Slovakia, the

relationship was statistically significant. Thus, the profit did not respond to market conditions and was contrary to the economic situation. On the other hand, in the case of very large and large companies in the Czech Republic a strong positive correlation was observed between the medians of total and fixed assets and GDP. A similar trend was observed in Poland and Slovakia. This relationship shows the dependence of this aspect of the enterprises on market fluctuations. However, the level of assets does

Table 1: The Pearson correlation between GDP and the subsequent selected median of balance sheet positions (all companies) – part 1

		Correlation coefficient, N=10			
GDP at market prices, at current prices, millions of euro		Fixed assets	Total assets	Profit/Loss after taxes	EBITDA
Czech Rep.	Pearson correlation	0,63	0,015	-0,318	-0,024
	Significance (two-sided)	0,051	0,968	0,371	0,948
Poland	Pearson correlation	-0.869**	-0.659*	-0.660*	-0,496
	Significance (two-sided)	0,001	0,038	0,038	0,145
Slovakia	Pearson correlation	-0.799**	-0.788**	-0.812**	-0.828**
	Significance (two-sided)	0,006	0,007	0,004	0,003
Hungary	Pearson correlation	-0.712*	-0,628	-0.659*	-0.651*
	Significance (two-sided)	0,021	0,052	0,038	0,042
Ireland	Pearson correlation	0,186	0,289	-0,05	-0,452
	Significance (two-sided)	0,606	0,417	0,891	0,19
Spain	Pearson correlation	0,331	0,138	-0,565	-0,325
	Significance (two-sided)	0,35	0,704	0,089	0,359
		* Correlation is significant at level of 0.05 (two-sided).			
		** Correlation is significant at level of 0.01 (two-sided).			

Source: Own study

not go hand in hand with profit expressed by profit / loss after taxes, or EBITDA.

The correlation in three countries is not statistically significant, although the differences in the signs of correlation indicate that drawing concrete conclusions may not be possible. On the other hand, it shows how different approaches to profit can represent different indicators. A statistically significant correlation coefficient was observed in the case of Hungary, where EBITDA is negatively correlated with the level of GDP, and in the case of Ireland, where the correlation was positive. A lack of statistical significance and the differences in the signs at the rates of profit in one state may indicate a lesser dependence on market conditions in large and very large than for all companies.

It is interesting to compare the results of the analysis for large and very large companies. It seems that the trend has been reversed. Looking at, for example, the level of total assets, in most cases it is positively correlated with the level of GDP, apart from Spain and Ireland, where the correlation is negative. However, these dependencies, except for the Czech Republic, are reversed in the case of all companies. This points to differences in the functioning during the crisis of not only individual countries, but also different types of businesses.

The following tables present an analysis of liquidity (Current Ratio, Liquidity Ratio, Solvency ratio) and profitability ratios (Rate of Equity and Rate of Assets). Analysis of the profitability ratios for all companies indicates the Czech Republic and Ireland as countries where the reported rates significantly correlated with GDP growth. However, in the Czech Republic the relationship is always negative, whereas in Ireland only the Solvency ratio correlates negatively - albeit not in a statistically significant way. This diversity in signs correlation does not allow us to draw firm conclusions. We are more inclined to believe that changes in GDP in the vast majority of cases (except the Czech Republic) do not affect liquidity. A very similar situation occurs in the case of large and very large companies. In this case in the Czech Republic a negative, statistically significant relationship between liquidity and growth of GDP was observed.

This feature clearly distinguishes the Czech Republic, and at the same time indicates a small variation in the condition of enterprises of all sizes. The correlation of profitability ratios is always of a positive sign, regardless of which research group is analyzed. Additionally, in the case of all companies these relationships are statistically significant in the case of the Czech Republic, Ireland, Spain and Poland. However, in the case of large and very large companies a statistically significant dependence is

Table 2: The Pearson correlation between GDP and the subsequent selected median of balance sheet positions (large and very large companies) – part 2

GDP at market prices, at current prices, millions of euro	Correlation coefficient, N=10				
	Fixed as-sets	Total assets	Profit/Loss after taxes	EBITDA	
Czech Rep.	Pearson correlation	0.944**	0.943**	0.374	-0.368
	Significance (two-sided)	0	0	0.288	0.295
Poland	Pearson correlation	0.835**	0.935**	-0.098	-0.088
	Significance (two-sided)	0.003	0	0.788	0.808
Slovakia	Pearson correlation	0.952**	0.958**	-0.271	0.473
	Significance (two-sided)	0	0	0.448	0.167
Hungary	Pearson correlation	0.525	0.303	0.56	-0.732*
	Significance (two-sided)	0.119	0.395	0.092	0.016
Ireland	Pearson correlation	0.231	-0.18	0.708*	-0.15
	Significance (two-sided)	0.52	0.619	0.022	0.679
Spain	Pearson correlation	0.339	-0.692*	0.398	0.553
	Significance (two-sided)	0.338	0.027	0.255	0.097
	* Correlation is significant at level of 0.05 (two-sided).				
	** Correlation is significant at level of 0.01 (two-sided).				

Source: Own study

Table 3: The Pearson correlation between GDP and the subsequent selected median balance sheet positions (all companies) – part 3

		Correlation coefficient, N=10					
GDP at market prices, at current prices, millions of euro		Current ratio	Liquidity ratio	Solvency ratio (Asset based)	ROE using Net income	ROA using Net income	
Czech Rep.	Pearson correlation	-0.717*	-0.561	-0.772**	0.701*	0.730*	
	Significance (two-sided)	0.02	0.092	0.009	0.024	0.016	
Poland	Pearson correlation	-0.342	0.23	-0.506	0.713*	0.665*	
	Significance (two-sided)	0.334	0.523	0.136	0.021	0.036	
Slovakia	Pearson correlation	0.456	0.429	-0.202	0.680*	0.707*	
	Significance (two-sided)	0.185	0.216	0.575	0.031	0.022	
Hungary	Pearson correlation	-0.526	0.349	-0.416	0.458	0.501	
	Significance (two-sided)	0.118	0.323	0.232	0.183	0.14	
Ireland	Pearson correlation	0.562	0.641*	-0.253	0.772**	0.799**	
	Significance (two-sided)	0.091	0.046	0.481	0.009	0.006	
Spain	Pearson correlation	-0.556	0.366	-0.366	0.862**	0.835**	
	Significance (two-sided)	0.095	0.299	0.298	0.001	0.003	
		* Correlation is significant at level of 0.05 (two-sided).					
		** Correlation is significant at level of 0.01 (two-sided).					

Source: Own study

Table 4: The Pearson correlation between GDP and the subsequent selected median balance sheet positions (very large and large companies) – part 4

		Correlation coefficient, N=10					
GDP at market prices, at current prices, millions of euro		Current ratio	Liquidity ratio	Solvency ratio (Asset based)	ROE using Net income	ROA using Net income	
Czech Rep.	Pearson correlation	-0.717*	-0.561	-0.772**	0.701*	0.730*	
	Significance (two-sided)	0.02	0.092	0.009	0.024	0.016	
Poland	Pearson correlation	-0.342	0.23	-0.506	0.713*	0.665*	
	Significance (two-sided)	0.334	0.523	0.136	0.021	0.036	
Slovakia	Pearson correlation	0.456	0.429	-0.202	0.680*	0.707*	
	Significance (two-sided)	0.185	0.216	0.575	0.031	0.022	
Hungary	Pearson correlation	-0.526	0.349	-0.416	0.458	0.501	
	Significance (two-sided)	0.118	0.323	0.232	0.183	0.14	
Ireland	Pearson correlation	0.562	0.641*	-0.253	0.772**	0.799**	
	Significance (two-sided)	0.091	0.046	0.481	0.009	0.006	
Spain	Pearson correlation	-0.556	0.366	-0.366	0.862**	0.835**	
	Significance (two-sided)	0.095	0.299	0.298	0.001	0.003	
		* Correlation is significant at level of 0.05 (two-sided).					
		** Correlation is significant at level of 0.01 (two-sided).					

Source: Own study

attained in the cases of Czech Republic (ROA), Ireland, and Spain (both ratios).

In general, the profitability ratio like ROE or ROA remained positively correlated with real GDP growth rate - volume percentage change from previous year. In all cases except Hungary this correlation was statistically significant. There is one case which drew our attention: Poland. The positive correlation with a GDP growth rate which is also positive means that companies noted slower development, but not recession. The results indicate a strong dependence of the sector on the whole economy in almost all the countries surveyed, with the exception of Hungary.

The positive, and sometimes also strong dependence of the profitability ratios on GDP percentage change indicates the need for analysis of the changes in GDP.

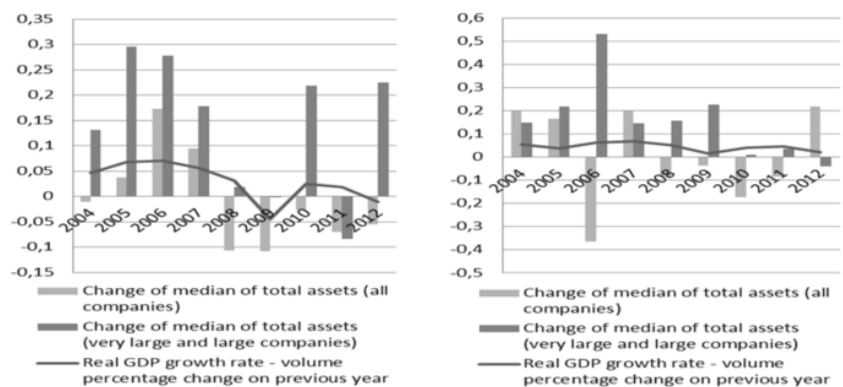
In the case of large and very large companies it seems that the correlation between profitability ratios like ROE or ROA stayed positively correlated with real GDP growth

rate - volume percentage change in the previous year, but in the group of all companies the correlation is not so strong, with only Ireland and Spain noting a correlation coefficient statistically significant in the cases of ROE and ROA. In the Czech Republic a correlation coefficient statistically significant was noted in the case of ROA.

The study confirms that large and very large companies in Central European Countries cope with the crisis quite well. The charts below show that profitability is not declining, despite the decline in GDP. Declines in profitability were recorded for companies in Ireland and Spain.

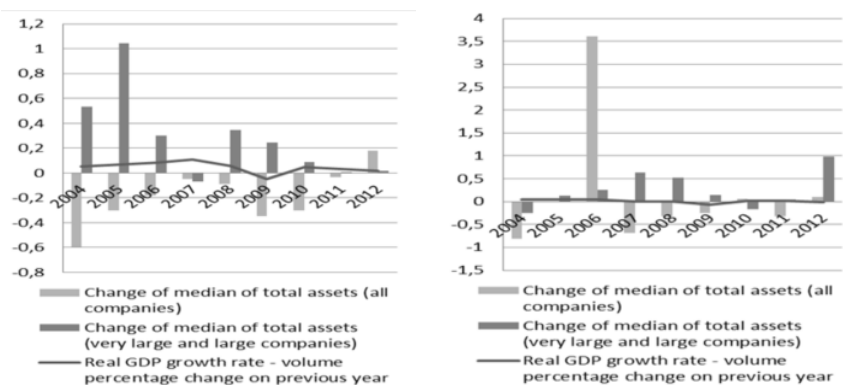
Analysis of the above Figures shows yet another face of the construction sector's condition. Insofar as the economies of all countries, except for Poland, plunged into recession, a slowdown in construction companies was recorded in the countries of Central Europe, whereas in Spain and Ireland the sector experienced serious problems. As can be seen in the graphs, in these countries

Figures 11 and 12: GDP and ROA in the Czech Republic and Poland



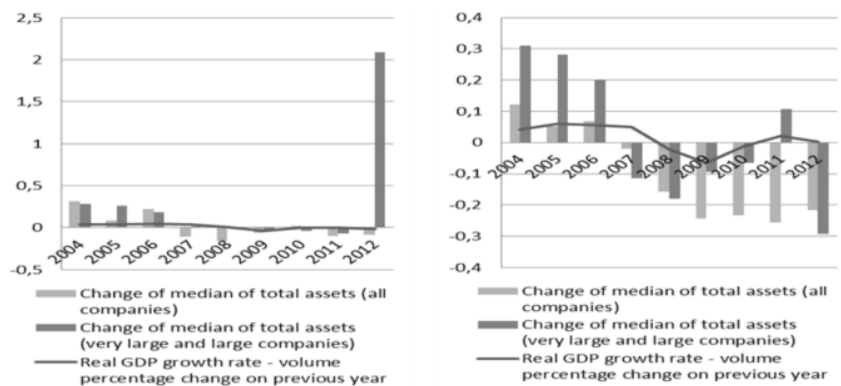
Source: Own study

Figures 13 and 14: GDP and ROA in Slovakia and Hungary



Source: Own study

Figures 15 and 16: GDP and ROA in Ireland and Spain



Source: Own study

the profitability of assets has reached negative levels in recent years.

Moreover, one can notice that large and very large companies perform better than all companies in the sector. It may thus be assumed that small and medium companies were more sensitive to the economic situation.

CONCLUSIONS

Due to the rising tide of interest in residential properties a construction boom began in many countries at the beginning of the new millennium. The studied post-socialist countries experienced growth in residential construction as a result of economic development closely

related to EU integration, but it was not a boom visible in Ireland or Spain. The post-socialist states which acceded to the EU in 2004 have still had the status of “catching-up” countries. It is worth noting that the level of their economic development is lower than the EU average and housing needs are enormous, therefore residential construction activity should be more intense. Special funds provided under various aid schemes are used for creation of new infrastructure and thus involving the construction sector. Therefore, it may be said that from this point of view even after a significant reduction of activity in residential construction seen after 2008, the construction sector would still have new tasks. We hypothesized that the crisis affected the financial condition of the companies, reducing their value, liquidity

and profitability. The study confirmed this view, however, there are strong differences in construction industry activity in the surveyed countries. Poland has the best position. Ireland and Spain are the example of countries which were able to catch up with the European Union and even surpass the average, which was most visible in the case of Ireland. Residential markets as an investment area, and especially enormous construction activity, played a very strong role in these countries’ past success, as well as in their crises. If one takes into account Ireland and Spain, the decline in profitability in the construction sector is strongly noticeable. However, in the Visegrad Group countries, the situation is different. Profitability declined, but still remained at a positive level. It is worth noting that all countries reported declines in GDP except for Poland, which reported reduced growth, but not a GDP decline.

Taking into consideration the number of completions of new apartments and houses and the decline of their prices, one would have expected deterioration in the financial performance of construction companies. However, this was apparent only in relation to Ireland and Spain. A

specific example is Hungary, where, despite a clear downturn in the residential market, construction companies have maintained a positive yield, as in other post-communist countries. We are of the opinion that the probable cause for this state of affairs is the strong commitment to the construction companies in the

creation of new infrastructure.

The study showed that the strength of the construction sector is linked to the overall economy. This is a conclusion which is obvious on the one hand, but on the other, there are clearly visible differences between countries, even though their economies are often considered to be similar. Moreover, large and very

large companies in the construction sector perform better during an economic downturn than all companies, including small and medium-sized firms. This is an important conclusion for the whole sector due to the fact that more than 90% of all construction companies are small, employing up to nine people.

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