

How did the Project-based Companies Defend against Impact of Economic Crisis? The Case Studies of General Contractors in Poland

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Abstract—Since 2008 European and U.S. economies suffered fiscal-financial crisis. After some years it has affected the Polish construction industry. This paper examines the impact of economic crisis on construction industry and general contractors. Discussion is concentrated also on recovery strategies that were applied by general contractors in Poland after year 2008. The study shows primary reasons of downturn, such as: Decrease in GDP growth, lower investment activity of market entities, strong competition in the market caused price war between general contractors to win new orders, and lack of competences entering the new construction segments and experiences in realisation of megaprojects.

Index Terms—economic crisis, construction industry, general contractor, Poland

I. INTRODUCTION

Crisis may come in many various forms, including natural disasters such as earthquakes, technological disaster such as the fervour regarding the Y2K computer Bug (Millennium bug from year 2000), organization-level such as labour strikes, or firm disaster, and economic crisis such as the one in Asia in 1997 [1], or political disaster such as authority changes influenced by social pressures, industry disasters such as enterprise bankruptcies connected with sharp decrease in demand. Each form of crisis has its own causes (determinants) which influence the market in a number of ways. The paper concentrates on economy, industrial and organization levels, since they are one of the main subjects of economic research.

A number of scholars have conducted conceptual and empirical studies on topic of last years' economic crisis. They examined especially: prime factors which triggered the crisis [2], general conditions of the crisis regarding the economic theories [3], sociology of crime which constitute the background of crisis [4], and various consequences of the present global crisis for world society [5]. General conclusion of the mentioned research is that managers, before implementing recovery actions in organizations, should recognise environment, especially factors affecting the industry and company. That follows

the organization system's theory and reflects the structure of the paper.

The main objectives of the paper are to study the influence of the slowdown in Polish economy on construction industry, especially general contractors in years 2008-2013 and examine the crisis response strategies applied by managers in the above mentioned sector. The correlation between economic cycle and construction industry fluctuation was positively verified [6]. The presented research aims at examining the relationship ones again but in conditions of new economy, using the case study of Polish market. There is a lack of the academic studies that discuss the nature of construction industry downturn in Poland after the beginning of current fiscal-financial crisis. The paper aims at closing the gap existing in economics and management sciences.

II. RESEARCH METHODOLOGY

The paper refers to conducted research that has following steps.

First, the significant, selected research findings in literature connected with crisis management and crisis management in project-based companies as well as construction companies and construction projects were described. Crisis management is identified in the paper as a process that has to protect a project-based organisation against negative impact coming from external environment or recover the entity when the above mentioned threats hit the company and projects as well.

Next, the construction sector analysis was conducted. The paper presents empirical study of the most important macroeconomic and industry factors that aimed at describing the slowdown in Polish economy and construction sector. The data from: Polish Statistical Office, Polish Central Bank, European Statistical Office, and Polish Ministry of Economics were used for the analysis. The time period between 2004 and 2013 was applied to observe the changes in economy and construction industry according to Kitchin's theory of business cycle [7]. Basing on own observation, statistical data analysis, and information from some business analysis institutions the main factors influencing the

deterioration of economic situation in the sector were searched.

In the third part of the paper the economic analysis of the selected general contractors operating in Poland was conducted. General contractors listed on the Warsaw Stock Exchange were chosen for the analysis. The research sample was targeted and resulted from opportunity to conduct more in depth economic analysis using the company information which is obligatorily published on the web sites. The study adopts financial ratio analysis that has an application for prediction of contractor sustainability [8]. The aim of the use of ratio analysis was to examine the participation of general contractors in the industry slowdown. Next the scope of implementation of crisis response strategies by research subjects was analysed.

III. THEORETICAL STUDIES IN CRISIS MANAGEMENT

Crisis management in project-based companies has been evaluated from organization theory. Taking this point of view it is necessary to shortly outline the major definitions and theories that in general have mainly enterprise approach.

Organizational crisis could be studied from a multidisciplinary approach or single disciplinary frame [9]. It results from various aspects that could be faced by crisis. Searching the recovery actions the managers should take into consideration: psychological, social-political, technological-structural, and economical views. Taking into consideration the above mentioned perspective, comprehensive, multidimensional definitions have been proposed: "effective crisis management involves minimizing potential risk before a triggering event. In response to a triggering event, effective crisis management involves improvising and interacting by key stakeholders so that individual and collective sense making, shared meaning, and roles are reconstructed. Following a triggering event, effective crisis management entails individual and organizational readjustment of basic assumptions, as well as behavioural and emotional responses aimed at a recovery and readjustment" [10]. In this meaning crisis management could be understood as disaster management or emergency management [11]. Some authors explain that crisis management represents a more reactive scope of activities which is focusing on the situation after crisis has occurred [12]. Before crisis management the managers have to implement issue management. It is concentrated on looking into the future to identify potential trends, occurrences that can especially negatively influence an organization. Despite the definition distinction, the most important are activities connected with widely understood crisis management: crisis preparedness, crisis prevention, crisis event management, post-crisis management [10], [11], [12].

Economic crisis may affect especially the financial position of enterprises. It does not mean directly that the problems on industry or organization level will occur but e.g. for construction sector there should be yellow light denoting possible big threats. It has to be emphasized that during normal operation on the market, all organizations

face many threats that are connected with risk, uncertainty and unknown conditions of environment. We can treat them as unexpected events that may have been predicted (or not), but are not expected to happen in the future [13]. However, organizational crises are shock waves sent through company systems. It is important to know how these shock waves affect individual parts of organization, what employees do in preparation for, containment, and recovery from crises, as well as in repairing operational systems [14].

In project based-companies the managers should always anticipate negative influence of external factors compared i.a. with the nature of project life cycle – especially as a long-term undertaking. But at the same time, due to equal mechanisms, during project planning and especially the execution additional opportunities may appear [12], [14]. The beginning of economic crisis as a yellow light for construction companies results from the business behaviour of enterprises. Many entities, in order to avoid lack of liquidity or sharp decrease in turnover and profitability, often postpone or cancel their investments, cut primarily costs of advertisement and consulting. The objective of such activities is to increase short-term efficiency. Project-based companies that are executors of investments or providers of advertisements and consulting services, experience the economic crisis partly with some time-lag but mostly with doubled force (more than non-project organizations). The above mentioned time-lag is connected mainly with long-term execution of projects. Lack of new investments influences predominantly the company backlog for the following years, and decreases the amount of turnover in the future. In such conditions managers have to prepare the company for worse times by introducing crisis management [15]. This process should "ensure that the project team is capable of addressing crises and has appropriate system in place to predict and cope with excursion from the project plan" [16].

There are numerous studies on crisis management in the construction industry. Some of them pointed that disaster in the above mentioned sector is likely to be characterised by various phases of behaviour -shock, defensive retreat, acknowledgement, adoption, and change [17]. Others concentrate on conflict management issues, trying to find its background, structure or methods of elimination. Crisis management depends on types of events that may occur. In construction industry significant role can play mainly [18]: natural disasters (e.g. extreme snow/ice conditions or extended freeze), operations issues (equipment failure, accident on the construction site, loss of a key subcontractor/supplier, construction delay, cost overrun, design error/issue, neighbourhood/community opposition to a project, enormous structural/subsidence collapse, data/telecommunications failure/loss of critical data etc.), environmental accidents (groundwater contamination, release of toxic chemicals into the air or waterways etc.), employee safety and healthy (e.g.: chronic safety problems, serious injury of an employee or non-employee, exposure to carcinogens), labour relations (unfair labour

practices, work stoppage etc.), management issues (bankruptcy, contractual dispute with a client resulting in litigation, hostile takeover attempt, key employee leaving to competitor company or to client). Other classification prepared as a construction risk model [19] contains following categories: physical, environmental, design, logistics, financial, legal, political, construction (connected with feasibility of construction methods, industrial relations, quality and availability of management and supervision) and operational (fluctuations in market demand for products and services). The above mentioned events occur in regular operating of construction companies, so the crisis conditions have to be characterised by their extreme severity that can negatively influence the financial and competitive position of the enterprise. Such conditions, appearing during industrial crisis, may result from economic crisis or decline phase of industry. Because the construction industry plays a vital role for country development, it will probably never be a declined sector, e.g. between 1991-2000 the construction industry experienced a dramatic expansion of opportunities in global construction market [20] mainly due to fall of communism, and since 2000 new opportunities in Arabic countries have appeared. To conclude, economic crisis is a primary reason of periodical industry disaster. A recession is a part of economic cycle which has a direct influence on the critical aspects of a project [21] and the project-based organization. Can that correlation for Polish market in years 2004-2013 be confirmed?

IV. FROM ECONOMIC DOWNTURN TO INDUSTRY SLOWDOWN

The exploration of economic prospects, including measuring the economic downturn is one of the most important research area of economics [22]. A lot of economists have been trying to design prediction models [23] or early warning systems [24]. Despite that the biggest economic crises in history were unexpected. The fluctuation in the market and bankruptcy of entities are natural inevitable processes. It can be assumed that prediction is much more complicated than measuring the depth of the downturn. It is because we are still not able to foresee well enough future macroeconomics indicators [25].

The recession phase of economic cycle can be recognised using main macroeconomics measures, like: GDP growth (Gross Domestic Products), total added value growth, inflation rate, unemployment rate. The fluctuation in industry can be measured with e.g.: construction added value growth, sale rate of construction and assembly production, price indices of construction and assembly production.

The statistical analysis of the above mentioned indicators for Polish economy between 2004 and 2013 confirmed the existing short-term economic cycle according to Kitchin's theory (Fig. 1). Between 2004 and 2007 the economic recovery (GDP growth over 5%) was observed. In years 2008-2010 Polish economy was in

slow down, such as between 2012 and 2013. The fluctuation is caused by inventory cycle which is characteristic for developing countries such as Poland. Following Phillips curve theory [26] registered unemployment rate and inflation rate were compared in analysis. However, the trend of their fluctuation did not confirm direct correlation between the measures.

Since 2008 the economic bottom (GDP growth below 4%) should be not treated as recession/depression but slowdown. It can be observe especially in regard to the macroeconomic indicators of European Union. According to the data from Eurostat (European Union Statistical Office) real GDP growth of 28 Euro Countries in 2012 reached the amount of -0.4% and in 2013 0%. In the worst 2009 year 28 Euro Countries achieved real GDP growth -4.4% while in Poland it was 2.6%. However, the amount of GDP growth for Poland should be analysed from a perspective of developing country and convergence theory as well. It means that the GDP growth in Poland should be higher in the same conditions than in the old EU members. Significant economy slowdown from year 2009 was confirmed by stoppage of unemployment rate decreasing trend, which was observed since 2004.

The combined effect of the economic events on the demand in construction sector is indeed more difficult to forecast [27]. In general, GDP growth and total added value growth should have direct correlation with construction added value growth, mainly because of the needs of additional production capacity creation. That relationship was observed between 2004 and 2007. The downturn in total macroeconomics indicators in 2008 decreased construction added value growth. But next poor years in economy did not influence negatively construction sector till 2012. The reasons could be the extraordinary events in economy, especially connected with mega projects and programs (Fig. 1).

Since 2004 construction and assemble production rose faster than GDP mainly due to lack of: residential objects, logistic, manufacturing and shopping spaces. It was a lot of new but relative small new investments. Rapid growth of GDP caused high inflation and finally slowed down the purchase process. The worldwide fiscal-financial crisis from year 2008 influenced Polish economy only in limited degree, due to new mega projects - infrastructural investment financially supported from the budget of European Union, like highways, expressways, or sewage treatment plants. Since 2010 significant role played new mega projects - additional investments (stadiums, airports, etc.) connected with organization of European Tournament in football in the middle of 2012 (EURO 2012). The second half of 2012 was extremely unfavourable for Polish economy and construction industry. The program EURO 2012 has finished and private investment activity was limited due to the economy slowdown. Finally growth of construction assemble production amounted -3.2% - the lowest level in the analysed period. The situation did not change significantly in 2013.

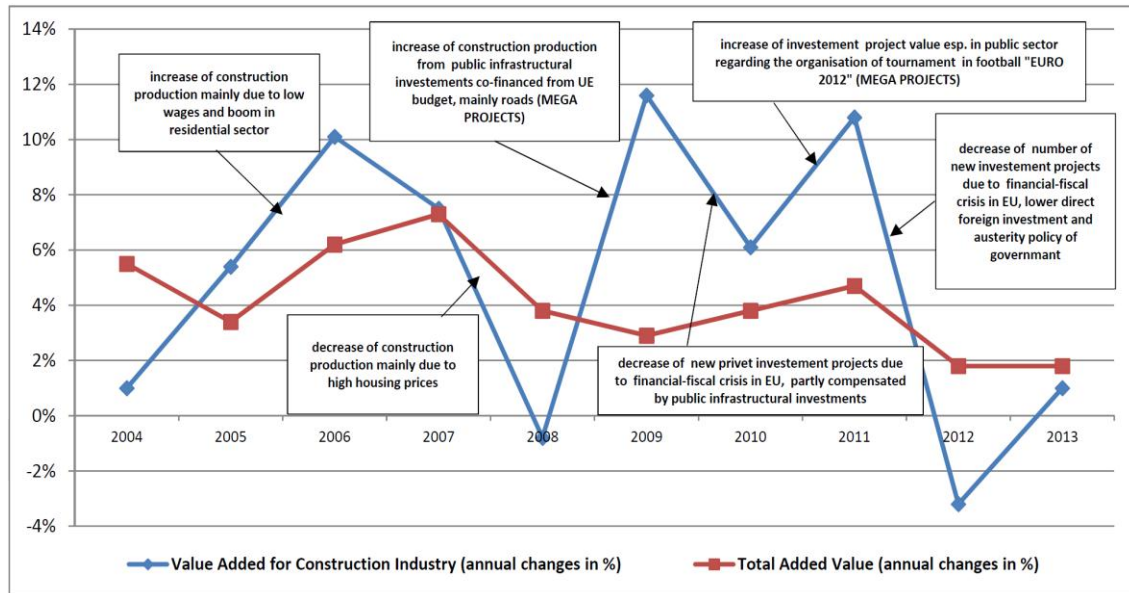


Figure 1. Fluctuation of Polish economy and construction industry between 2003 and 2013

To sum up, in Polish case the slowdown of economy affected the construction sector with a time-lag. It is connected with two main factors:

- Peculiarities of construction industry, where long-term projects are executed and that postpone the recession time in industry,
- Mega projects and programs that are mainly connected with infrastructure and are financed from public sources (government budgets), which is a key proposal in Keynes theory.

Slowdown in construction industry can be predicted in advance using business tendency survey in construction that has been conducted e.g. by Polish Statistical Office. It should be pointed that they do not provide specific quantitative information but base on subjective assessment of respondents regarding current and future trends [28]. The results of survey are arithmetic balance of responses on questions in the field, like: expected domestic order-books (new orders), expected financial situation of enterprises, or general business climate indicator (Fig. 2).

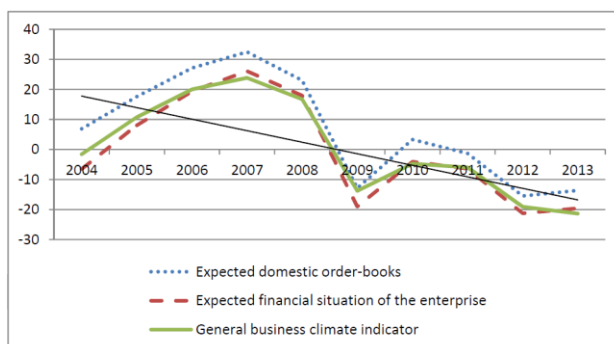


Figure 2. Expectations to selected indicators of business tendency in Polish construction industry

Presented data are differences between positive and negative prediction of responses and not take into account

neutral answers. The amount of 30 means that it was 30% more positive predictions than negative.

The presented data, coming from Polish Statistical Office, confirms that managers in construction companies predict downturn much faster than the situation in industry change. Expectations are based not only on information from the sector but predominately on fluctuation in economy. The managers prospect in 2008 that the economy would influence construction industry. The presented data takes into account the extraordinary events which occurred in years 2010-2011 and were connected with EURO 2012.

V. CRISIS RESPONSE STRATEGIES APPLIED BY GENERAL CONTRACTORS

The analysis of macroeconomic indicators were conducted in years 2004-2013 to observe the fluctuation of economy according to Kitchin's business cycle theory. The study showed that the slowdown of economy started in 2008. To observe the impact of crisis conditions on selected general contractors the period from 2007 till 2013 was applied for the analysis.

In order to conduct an in-depth study on recovery strategies, the largest construction companies listed on the Warsaw Stock Exchange were selected. The enterprises represent only a part of the Polish market but we can observe among them all the positive and negative trends and events characteristic for the industry. Additionally, they publish reliable and current data for microeconomic analysis.

In order to study the participation of the selected general contractors in slowdown of industry, annual revenues from sales were analysed. Next the sale rate of total construction and assemble production with the sales rate of general contractors-growth in annual revenues from sales were compared (Fig. 3). All the above mentioned data comes from annual financial statements of that entities that were published on their web sites.

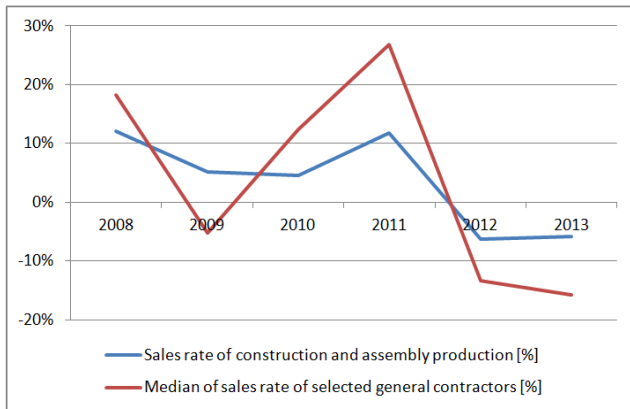


Figure 3. Correlation between sales rate of industry and selected general contractors

The general conclusions from this part of the study are as follow:

- Selected general contractors participated in industry downturn (the trends of sales rates of the sector and selected entities are equal),
- Revenues from sales of general contractors are much more sensitive to fluctuation of economy than incomes achieved by other sector members due to lower resilience comparing with smaller entities,
- In 2009 majority of selected entities experienced a year decline in revenue from sales, which confirms a time-lag of slowdown between economy and construction sector, after realization of big and mega projects, which were a part of program EURO 2012, the general contractors experienced the second much deeper wave of economic slowdown.

The ratio analysis (Fig. 4) showed that the indices: ROS (Return on Sales), ROA (Return on Assets) and current liquidity ratio had downward trends. Only debt ratio changed slightly.

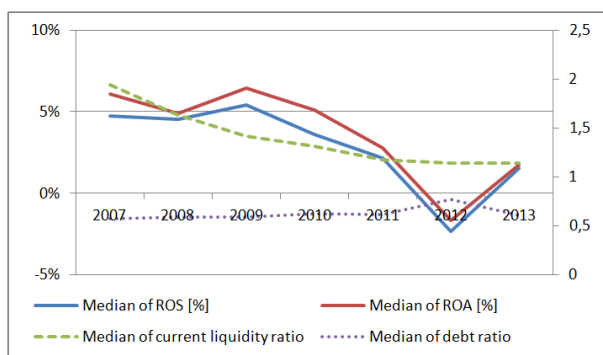


Figure 4. Results of ratio analysis of selected general contractors

The presented quantitative study confirmed that the general contractors were forced to implement some recovery actions. Before recognising them, using qualitative reports, like directors' reports on the activities of companies and opinion of professionals, the direct reasons of industry and company decline were explained. They were as follows:

- Decrease of total demand on construction and assembly production, mainly due to deterioration of economic situation of private enterprises (causing the decrease in private investment value),
- Strong competition in the market due to decline after boom period in construction industry since at least 2004 (national competitors and entities entering Polish market from Spain, Turkey, Slovakia, China etc.) that confirmed the findings of other researchers [21],
- Lack of competences while entering new market segments,
- Price war between construction enterprises affected by dumping prices (due to the need to fulfil order backlog and secure the turnover forecast),
- The use of price as the major, often the only one, selection criterion in public tenders (enhancing the price war),
- Delays in incoming payments from customers to general contractors and from general contractors to subcontractors,
- Restricted lending policy applied by banks,
- Initially in 2007 the lack of public institutions' experience in managing large infrastructural projects (causing problems in communication between construction enterprise and public client),
- Lack of experience, therefore competences in realization of large projects,
- Introduced from 2009 practices by GDDKiA (General Directorate for National Roads and Motorways) –main infrastructural project sponsor – that the lump-sum projects could not be claimed due to general increase of market prices.

The presented reasons of industry downturn in Poland differ in many points from the experience of housing disaster in other countries, such as the United Kingdom [21], Spain [29], Italy [30], or Hong Kong [31].

First of the above mentioned reasons have an economic background. The general contractors did not predict numerous macroeconomic risks, such as growth of wages and salaries, or increase of material prices.

Three last ones are connected with realization, especially managing of mega projects and programs. In Poland these group may consists of projects that contract value exceeds 250 bln. EUR. There are mainly from infrastructural segment: highways, railroads, energy plants. During last years mega project group contained additional construction of underground and national stadium in Warsaw. The main, but not the only one, issue in managing large projects was an inadequate cooperation between public investor and contractors.

It is not surprising that mega projects caused some downturn of general contractors, because the knowledge of mega projects is too partial instead of all-around, and a number of people can not give a clear statement of mega project [32]. Mega projects bring together, under various contractual arrangements, differing and competing partners, interests, values and modes of rationality -ways

of doing and thinking [33]. All the above mentioned conditions and many others impose high expectations on project management. They can be measured as a value of project management that is generated in four dimensions: the enterprise, customers, subcontractors/suppliers, and the community [34]. The first one is connected with achieving better measurable financial or non-financial results. The customer dimension focuses on improving relationship with current and potential clients. The subcontractors/suppliers aspect concentrates on the increase of orders efficiency but at the same time the building of strategic partnership. The community dimension focuses on development of company staff and correct relationship with the society.

The conducted study showed that managers in Poland while applying crisis management tried to increase predominately the company efficiency to satisfy the shareholders. But the solutions cover other dimensions as well. Following the crisis indicators and their impact on company they applied 8 main response actions (Fig. 5) that did not base on the theory of growth (controlled growth). They follow a new approach - controlled flexibility, even controlled regression [35].

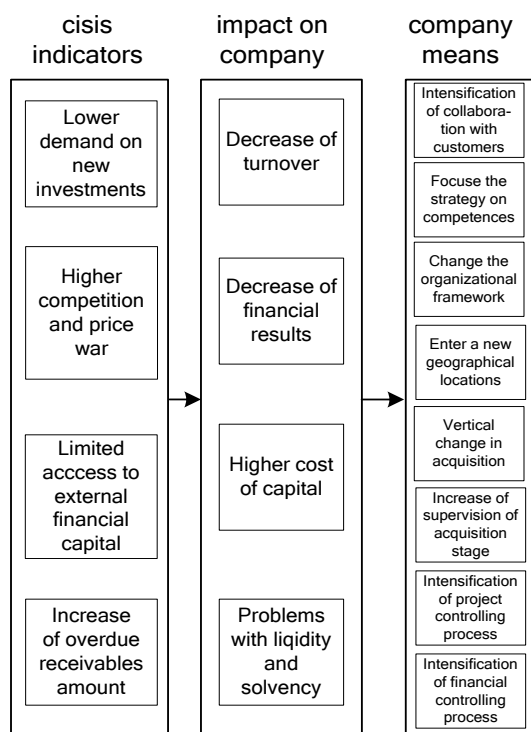


Figure 5. Applied by companies means as a response to crisis conditions

Applied by general contractors means are as follows:

1) Improving collaboration with current customers on the company and project level, and building the relationships with potential clients. The key element should be developing the process of trust building inside the project team [36] and with clients [37].

2) Focusing the strategy on key competencies and key operating areas. It is particularly important because, before the crisis, Poland experienced a boom in construction industry. The entities wanted to take

advantages of the good times and carried out various types of projects. Additionally, having high profits, the construction companies invested a lot of money in competitive entities and fixed assets such as buildings. Crisis response strategy focused on selected projects where the entity had high competences, and sale of fixed assets or shares in other organization, that did not support significantly the core business.

3) Changing the organizational framework, what is correlated with previous point. The first objective of the process was concentration on core business. One of the major activities has been a sale of entities that constituted the construction group but did not take part directly in construction and assembly production. The second one was the merger of some units in one department or division to reduce total operating costs and be more flexible on the market. The mergers helped in communication inside the company and between the company and its stakeholders, which is one of the key tasks according to practice-as-project approach [38].

4) Entering a new geographical location is connected with strategy of development. The companies started acquiring the projects in places where they had not operated before. Because the enterprises had the work done fully secured (backlog) in times of construction boom, they were not interested in searching new projects in more distant locations. In new market conditions such limitation was cancelled due to the requirements of new projects.

5) Vertical increase in scope of tender submission means acquiring smaller projects than before. It was a response to the situation that on the market there were fewer new large projects and a lot of competing companies. To be more competitive and offer lower prices general contractors reduced their overheads.

6) Increase in supervision of acquisition stage to prepare better tender offers that will include all predictable risks. The described activities were the response to execution of risky, not well prepared projects that suffered from big losses e.g. highways, stadiums, airports. Supervision of acquisition stage had to be the key factor of improving project efficiency. It had to be a response on acquisition of projects without having enough competences to perform them.

7) Intensifying the project controlling in project performance phase. The main objective of the process was to introduce additional procedures and implement more efficient supervision of cost calculation using e.g.: scenario techniques, deviation analysis, techniques of future predictions, and risk management. The primary role of crisis response actions was to focus on management in uncertain conditions by planning, monitoring, detecting, analysing, assessing, and valuation of future opportunities and threats. The intensification of project controlling had to make the early warning system more efficient. The changes allowed the managers to spend much more time on project management e.g.: helping and controlling work of project team members,

subcontractors, utilization of equipment or work quality. Such activities follow the recommendations of some academic research [39].

8) Intensifying the financial controlling in project performance and decline phase. The main scope of the process was to pay more attention to liquidity analysis of projects, project portfolios, and programmes because the amount of overdue receivable grew. That objective could be achieved by proper design, application, and use of treasury IT system.

The presented strategies and actions based on traditional and contemporary project management approaches. They focused on development of management support tools (points 7, 8), redesign of organizational structure (point 3), improvement of organization and project efficiency (points 4, 5, 6 and 8). We can find the application of social aspects (point 1 and 2) and process project management theory that based on development of the value of project management. Such approach focuses the actions on design of main operational processes, such as construction production, communication with environment or project controlling (points 2 and 7).

VI. CONCLUSIONS AND LIMITATIONS

The research findings confirmed that it is not possible to generalise about a specific and repeatable occurring pattern and it is impossible to create one standard model of crisis behaviour in the construction context. Polish construction market differs from the other ones (e.g. in Spain, Italy, UK, or US) and needed its own combination of recovery actions. Understanding decline and failure from academic and practitioners point of view helps to understand success as protection against the crisis conditions by taking the necessary measures in good time to initiate an efficient turnaround [40]. In order to follow that recommendation the paper showed correlations between economic cycle, industry fluctuations and behaviour of general constructors. The research findings confirmed that the depth and beginning of downturn on the mesoeconomics level depends not only on characteristic of recession/slowdown in the country (depth and background etc.) but also on extraordinary national events (such as public mega projects) which can postpone the date or totally neutralize the impact of economy downturn. The above mentioned economic compilation occurred in Poland between 2009 and 2011. Significant share in participation in public mega project was given to the largest general contractors that enlarged their incomes but simultaneously reduced profitability and liquidity. The study pointed out that the revenues from sales of large general contractors are much more sensitive on changes of macroeconomic indicators than other smaller organisations from the industry. That resulted from little short-term flexibility of general contractors after years of the peak. But the research subjects learned the lesson and started the implementation of various crisis response strategies and operations that aimed at increasing the value of project management in

four dimensions: the enterprise, customers, subcontractors/suppliers, and the community.

The findings of the study have several limitations. They only describe the situation in Poland from years 2008 to 2013 due to market fluctuation. Current industry conditions may differ from the previous ones. It means that the findings can be useful to understand the main correlation between economy and construction industry, construction industry and its entities. The second limitation of the findings is connected with the research subject that is not representative for all population. First, the selected entities represent the large general contractors and the industry consists of numerous smaller organization that are much more flexible. Second, the research subjects are listed on the stock and try to operate applying good business principles, including CSR strategies. Such behaviour is not a sector standard. Third, the surveyed population is not homogeneous but generally operates in various construction subsectors. A lot of construction industry enterprises concentrate only on one, very narrow type of works. Taking into account all of the above mentioned limitations, further empirical studies in that field are still needed.

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