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# STRATEGIC DECISION MAKING IN TIMES OF GLOBAL FINANCIAL CRISIS

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## ABSTRACT

*The presented paper is a brief presentation of findings based on research lead on a group of small and medium businesses. The study has been made in conditions of global financial crisis and its effects, such as fall of production volumes in numerous companies. A number of indexes describing the actual economic situation and short – term prospects of discussed businesses has been presented to their medium- and high level executives in order to point out those most useful when taking strategic decisions. The sample structure consisted of companies with Polish and foreign capital operating locally and internationally. Obtained answers have been grouped in two sets accordingly to the actual situation of a given enterprise. The first group contains indexes preferably used by managers in times of economic instability, whereas the second group shows possible changes in preferences of economic indexes utility in times of prosperity. Research methodology included Delphi method and expert questioning for data gathering and Pareto – Lorenz analysis for interpretation of findings. The study ends with proposals of applications of research outcome into further research directed towards elaboration of a synthetic index facilitating strategic decision making in international companies.*

**Key Words:** *Decision Making, Enterprise Development Indexes, Pareto – Lorenz Diagram, International Management*

## INTRODUCTION

The ongoing financial crisis affects most of economies in the World. The effects of past investments into disputable financial instruments, such as subprime mortgages happened to be disastrous for various industry branches. Many companies, both operating locally and internationally, face serious problems – falling sales, lack of liquidity and personnel reduction being not the only ones to deal with. Additionally, fluctuating currency exchange rates in some Central- and Eastern European countries, i.e. Poland, cause strongly growing costs of foreign debt servicing. Together with lower income from taxes this causes higher budgetary deficit and social tensions. In such an instable situation any economic predictions or forecasts cannot be taken as a credible base for mid- and long – term strategic planning. As a result, decision making became much more difficult than in times of prosperity. This is the reason for which the author of the present paper has questioned decision - makers on various managerial positions which of the indexes describing the level of actual development of their businesses they take into account when making decisions in their everyday work. The present paper is a presentation of recent research led between medium and high level managers in chosen Polish and foreign companies operating internationally. The principal goal of this study was to find some common patterns and reasoning behind strategic decision making in times of economic instability in the World.

# 1. RESEARCH METHODOLOGY

The research methodology consists of two methods. The classical Delphi method is the first one, devoted mainly to data gathering and can be further divided into two stages. A brief description of Delphi – type questioning can be found below.

Literature studies provide various definitions of the Delphi method. Adler & Ziglio (1996) understand it as “...a structured process for collecting and distilling knowledge from a group of experts by means of a series of questionnaires interspersed with controlled opinion feedback”. Duval, Fontela and Gabus (1975) underline the value of expert opinions for decision – makers in a situation of permanent lack of full scientific knowledge in their daily routine. Helmer (1977) adds that “*Delphi represents a useful communication device among a group of experts and thus facilitates the formation of a group judgment*”.

The Delphi method is a tool of group evaluation of a given complex problem or task by a panel of independent experts, based on a set of criteria, common for all the questioned people. The problem is usually defined in form of one or more questionnaires. Several scientists described its main characteristics as “*anonymity, controlled feedback and statistical response*” (Adler & Ziglio, 1996, Dalkey, 1972, Fowles, 1978, Helmer, 1977). These features allow the experts to make their own independent evaluations, minimizing the risk of external influence. According to Fowles (1978) the classical Delphi process consists of following phases: 1. Team formation; 2. Panel and experts selection; 3. Development of first round Delphi questionnaire; 4. Questionnaire tests (formulation of questions, proper wording, etc.); 5. Expert answers for first round questionnaire; 6. First round response analysis; 7. Preparation and testing of second round questionnaires; 8. Expert answers for second round questionnaires; 9. Second round response analysis and repetition of steps 7 to 9 – if necessary; 10. Final report elaboration. It should be noticed that experts’ role is not to present the common statement based on a majority vote. The outcome of Delphi questioning comes in form of statistics, preferably presented in a graphical form.

A question about the number of experts to be involved into questioning seems to be crucial for obtaining stable and reliable results. Hanson & Ramani state that “*respondents to the questionnaire should be well informed in the appropriate area*”. Although some contrary opinions can be found in the literature, the author grants the reason to Hanson & Ramani. Scientific praxis allows ascertaining that a higher degree of expert knowledge allows the limitation of number of experts. Depending on the nature of study it can be even downsized to 5 highly qualified respondents, because any increase in number of completed questionnaires is not bringing meaningful changes in obtained responses.

The applications of Delphi method vary from academic research and education, through public health issues and economic forecasting understood as help for decision making, up to an exploration technique for forecasting of directions and trends of technological innovation as well as a tool enhancing discussions between experts (Cornish, 1977, Fowles, 1978 and Wissema, 1982). Recent applications focus on cross – impacts of analyzed events, which is also the case of the present study.

The second stage of data gathering is an evolution of Delphi method. It had a form of direct interviews with chosen experts in economic forecasting, business management and decision – making. The reason for additional questioning came from the specificity of research based on questionnaires. Although it proves to be very useful and an undisputable economic tool widely applied in various types of research, it limits the possibilities of answers to questions included in the questionnaire. Another reason is that an important part of questioned people tend to mark questionnaire answers only, without going into deeper explanations, despite the presence of “another .....” field meant for providing answers that have not been included in the questionnaire itself or for writing larger explanations.

The second method has been used for presentation and analysis of acquired data. As graphical form of presentation of results seems to be the most transparent, a modified Pareto – Lorenz Diagram has been chosen for this purpose. The Pareto – Lorenz diagram, known also as the ABC method, is based on a discovery of Vilfredo Pareto stating that 80% of results comes from only 20% of causes. According to Szumnarska (1996) “*The Pareto –*

*Lorenz diagram [...] is applied to identify and measure the importance of analyzed issues. Only these problems will be identified, which although being in minority towards the rest (20%), bear a dominant influence on analyzed issue (80%).”* The 20 – 80 proportion should not be seen as dogmatic, but it is the most likely to happen. In fact we can state for sure that 100% of efforts will never cause 100% of effects. The Pareto – Lorenz rule applied to the present study can be transposed into a proposal to managers of using only these indexes of economic condition of an enterprise that bring the highest certainty of optimal decision - making. Analyzing a bigger number of factors – including these less relevant – proves to be much less efficient and will not bring expected higher quality of taken decisions.

The method structure is built of the following steps (Szumnarska, 1996):

- identification of type of analyzed problems (i.e. economic indexes);
- determination of time span of analysis (day, shift, year, etc.) for later evaluation of decision - making effects;
- finding the frequency of occurrence of particular categories (i.e. reasons of wrong decision - making);
- setting data in diminishing frequency of occurrence order, calculation of proportional and cumulated frequencies;
- assigning scales for axes: horizontal – categories and vertical – frequency of occurrence (absolute value) and cumulated proportional value;
- putting values onto the graph in increasing order – frequencies of occurrence for each category (Pareto diagram) and curve of cumulated proportional values (Lorenz curve).

The questions of the questionnaire for the discussed study cover the following issues: region of operation of analyzed companies; years of experience on the market; legal form; territorial coverage (regional, national, international, global); percentage of foreign capital involvement; number of employees and employment structure (size of employment, type of contract, language skills, education); income from local, regional, international and global markets; level of profit / loss in past time periods; willingness of consulting services use; which indexes describing the actual economic situation and short – term prospects of respondent’s business are being used by company’s management at times of crisis; how would their preference towards applied indexes change in a situation of economic prosperity. The core of presented research has been included in the last two questions.

## **2. INDEXES DESCRIBING THE DEVELOPMENT LEVEL OF INTERNATIONAL ENTERPRISES**

Literature studies revealed the existence of more than 100 indexes describing directly or indirectly the level of actual development of an enterprise. Initial talks with small- and medium – enterprise managers that took place before Delphi questioning and expert interviews, resulted in limitation of indexes number to 18. The reasons for rejecting such an important number of indexes at early stage of research provided by questioned managers we can be divided into five groups:

- mathematical complexity of several indexes – complicated equations difficult to apply without sophisticated mathematical knowledge;
- lack of data necessary for calculation or evaluation of some indexes;
- lack of time – a group of economic indexes created mainly for comparison purposes could not be used when quick decision – making is needed;
- lack of credible data from past time periods – a part of indexes required for application non – available or non – credible historical data;
- non – conformity with analyzed profile of the enterprise.

Finally the set of 18 indexes has been chosen by the managers for further evaluation:

1. Product life cycle – “A new product progresses through a sequence of stages from introduction to growth, maturity, and decline. This sequence is known as the product life cycle and is associated with changes in the marketing situation, thus impacting the marketing strategy and the marketing mix” (Gorchels, 2000). For the purposes of the present study this index should be seen as percentage of company products in each of the stages of product life cycle (introduction, growth, maturity and decline).
2. Product diversification – this index shows the size of product portfolio of the given enterprise. Although in general opinion wider range of products provides sales continuity in case when a product or a group of products stop bringing satisfying profits, Ramírez – Alesón and Espitia Escuer (2002) state that “firms with intermediate levels of product diversification have the highest performance, while the firms with low and high levels of diversification show significantly lower performance, which performance is not significantly different between them.”.
3. Flexibility – from the economic perspective this index shows the aptitude and reaction time of enterprise towards changes in its market environment. Growing *innovativeness* level and immediate technology development of modern industry branches force companies to adapt to new market trends very quickly.
4. Level of cash on bank account – easy check of enterprise short – term financial liquidity. If used as an index, it should focus on constant analysis of capital inflows and outflows instead of checking its momentary levels. The supervision should also include trend check, i.e. seasonal peaks and shortages in bank account position.
5. Innovativeness – “An innovation is an idea that creates a measurable economic value. Any innovative activity has to be preceded by an “invention”, which is not directly meant to bring profit in terms of money. However, an innovation should at least imply a hope for creating net income” (Gawlik, 2009). This index presents the importance of innovations in strategy of the analyzed company.
6. Capitalization – value of an enterprise based on equity price. Provides information on available capital levels for operational activities and further development.
7. Equity price – especially watched by stock owners. Often limited to being a tool for assessment of management efficiency. Unfortunately its ability of revealing alarming changes in condition of the enterprise is too often neglected.
8. Number of clients – the analysis of portfolio of clients can provide some information on enterprise dependence on key contracts. Although a lower number of purchasers can enhance specialization towards their specific needs, a bigger number increases the level of enterprise independence and stability in times of recession or trouble on buyers' side.
9. Investment / income ratio – the percentage of funds reinvested into enterprise development. Reveals the approach of key stakeholders towards future development of the enterprise.
10. Level of income – general level of enterprise net profit after taxes.
11. Level of employment – number of people employed in the enterprise.
12. Structure of backlog of orders – popularity of particular products, directions of trade, size and type of clients, dominant payment methods and order volumes plus other information relevant for the composition of business partners portfolio.
13. Survival ratio – income to fixed costs ratio – index presenting the relation between costs that need to be covered on a regular basis (wages, leasing, office rent, administration, etc.). This index shows directly the minimal level of money needed yearly by the company to survive neither without creating liabilities nor realizing profits.
14. Parts Per Million (PPM) - ratio of complaints / faults in each million of produced parts. Used mainly in production companies.
15. Return on capital – measure of company effectiveness in managing the money invested in its functioning.
16. Floating assets level – amount of accounts receivable, cash, inventor and outstanding shares. Generally, an index showing company aptitude of maintaining a proper development (sales) / working capital ratio, i.e. growing sales require higher stock levels, which require increase of financing capabilities. An appropriate level of floating assets allows the company to operate without taking costly bank loans or instantaneous sales of assets to finance its regular operational activities.
17. Geographical range of activity – field coverage of company operations and market presence.
18. Operating profit – Earnings Before Interest and Taxes (EBIT) – measure of enterprise earning derived from its activities before deducting the payments of interest to stakeholders and income taxes to the government.

Please note that in the above group of indexes both qualitative and quantitative coefficients can be found. This comes from the fact that regular every – day planning involves an entire set of activities based rather on experience acquired during years of operation and managerial routine than on scrupulously prepared mathematical calculations. Simplicity of an economic index does not necessarily mean low utility. Sometimes it can be even the opposite, which will be proven – at least in some cases – in the following chapter.

### 3. SYNTHESIS OF STUDY RESULTS

The questionnaires accompanied by an introduction letter have been sent to more than 100 small and medium enterprises which resulted in 31 received answers (29 in electronic form, 3 on paper). The questionnaire return ratio level reaching nearly 30% seems quite high for this type of questioning. The reason probably can be found in the fact that electronic and paper dispatch has been preceded by phone conversations with targeted people.

It should be noticed that the research presented in this paper have been made in times of advancing global financial crisis (first quarter of year 2009). This could be one of the explanations of low manager’s assessment of utility of such indexes as *equity price*, *capitalization* or *innovativeness*, typically very closely watched by managerial boards. The questionnaire included also the question “*How would your answers differ if asked in times of prosperity?*”? Responses varied, accordingly to enterprise profiles, but a general trend towards enhancement of product related indexes (*product life cycle*, *structure of backlog of orders*), innovation (*innovativeness*, *investment / income ratio*) and income level (*equity price*, *return on capital*) could have been observed. Also *geographical range of activity* and *number of clients* gained some points. Few respondents stated that their competitive advantage has been even strengthened by crisis and recession. Although differences in respondents’ crisis – prosperity answers proved to be very interesting, they will not be interpreted here and remain, a vast field for possible further research.

**Table 1: Aggregated values of expert evaluations for significance rank: 1 – 4**

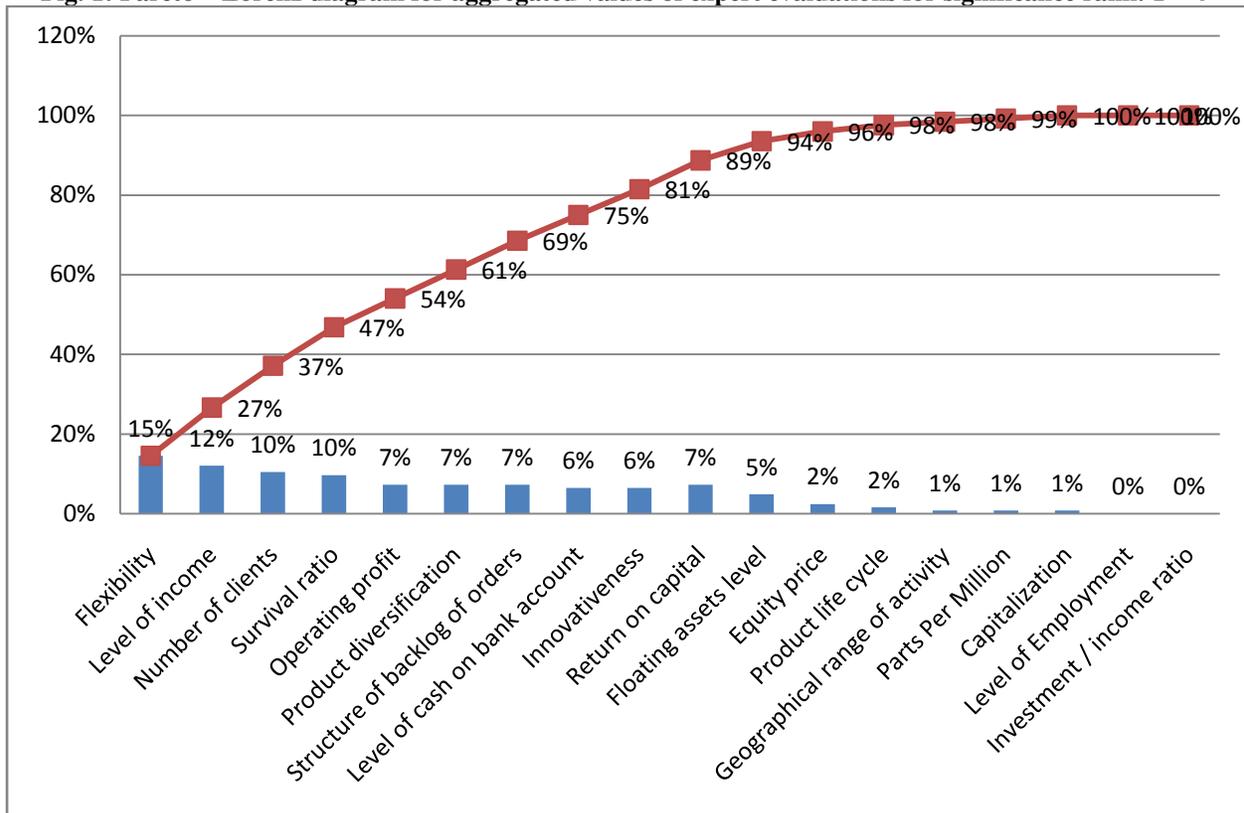
RESPONSES IN TIMES OF RECESSION			Significance Rank: 1 - 4			
Expert Ranking	Index	Average Rank	Number of Answers	Percentage of Answers	Cumulated No of Answers	% of Cumulated No of Answers
1	Flexibility	4,47	18	15%	18	15%
2	Level of income	5,21	15	12%	33	27%
3	Number of clients	6,57	13	10%	46	37%
4	Survival ratio	5,89	12	10%	58	47%
>4	Operating profit	7,64	9	7%	67	54%
>4	Product diversification	7,52	9	7%	76	61%
>4	Structure of backlog of orders	7,82	9	7%	85	69%
>4	Level of cash on bank account	7,86	8	6%	93	75%
>4	Innovativeness	8,04	8	6%	101	81%
>4	Return on capital	8,48	9	7%	110	89%
>4	Floating assets level	7,79	6	5%	116	94%
>4	Equity price	12,86	3	2%	119	96%
>4	Product life cycle	12,24	2	2%	121	98%
>4	Geographical range of activity	11,31	1	1%	122	98%
>4	Parts Per Million	13,35	1	1%	123	99%
>4	Capitalization	13,73	1	1%	124	100%
>4	Level of Employment	11,76	0	0%	124	100%
>4	Investment / income ratio	12,28	0	0%	124	100%

Source: Gawlik, R., own elaboration based on research

The above given table 1 shows aggregated values of expert evaluations of utility of all 18 indexes of international companies actual development. *Number of answers* values represents the number of experts that attributed highest ranks to a cumulated group of four indexes with highest average rank (significance rank 1 – 4). *Percentage of answers* says about the percentage share of *number of answers* in a total of 100%. *Cumulated number of answers* can be calculated by adding the current *number of answers* to preceding position from the same column with its percentage value marked in the last column – *percentage of cumulated number of answers*.

Research outcome presented in Table 1 indicates that 47% of decisions made by managers of international enterprises can be made on basis of 22% of indexes only. This percentage represents 4 indexes out of 18 that in most expert evaluations obtained highest ranks (between 1 and 4). These were namely *flexibility*, *level of income*, *number of clients* and *survival ratio*. The resulting Pareto – Lorenz diagram can be found below:

**Fig. 1: Pareto – Lorenz diagram for aggregated values of expert evaluations for significance rank: 1 – 4**

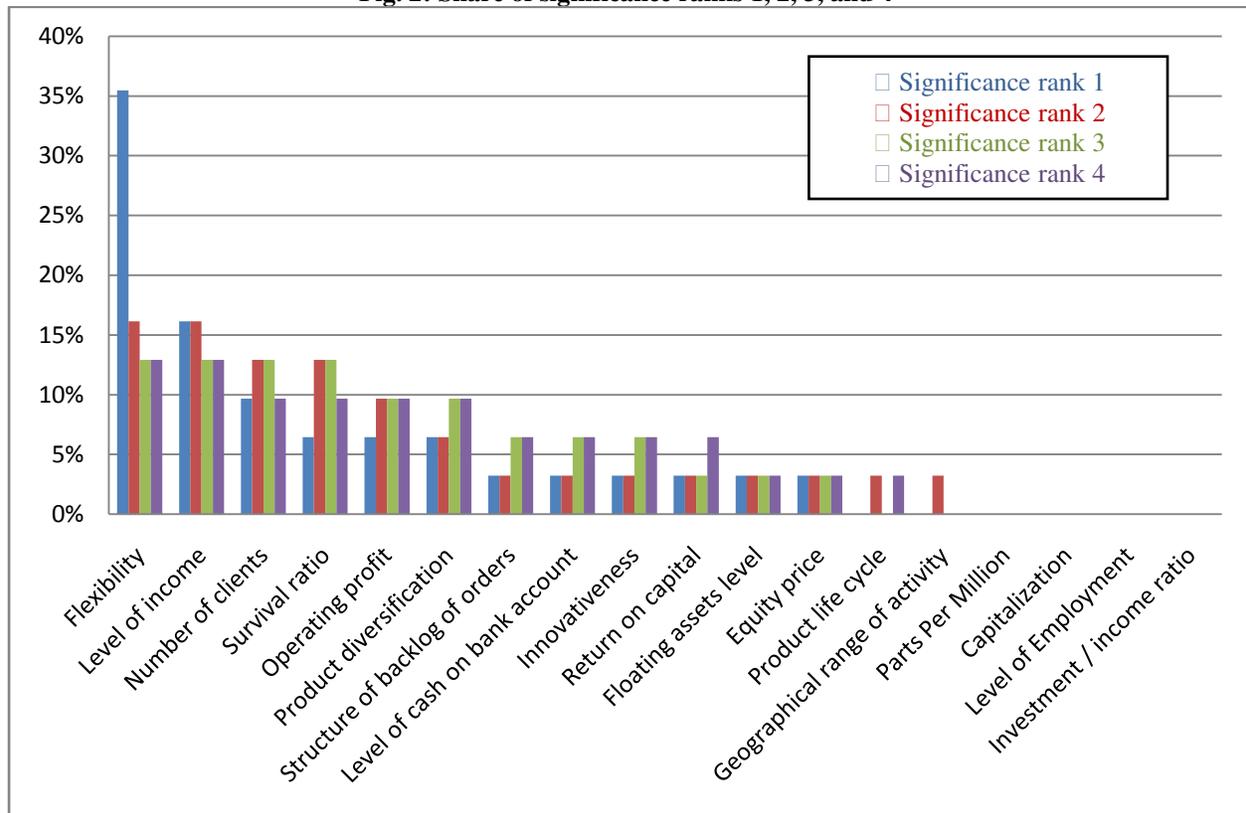


Source: Gawlik, R., own elaboration based on Table 1

Although the *reasons ratio* level (22%) is close to the value from Pareto – Lorenz method, the other side of proportion, the *effect side* appears to be less satisfactory (47%). This is why the author decided to perform a second Pareto – Lorenz analysis focused on each index separately. Its results show that most of experts agreed that between indexes describing the actual state and development level of international companies *flexibility* plays the crucial role (average percentage of votes above 20% for each significance rank from 1 – 4). Also *level of income*, *number of clients* and *survival ratio* were declared as relatively important (average percentage of votes above 10%). Clearly irrelevant were factors such as *parts per million*, *capitalization*, *level of employment*, *investment / income ratio*, *geographical range of activity*, *product life cycle*, *equity price*, *floating assets level*, *return on capital*, *innovativeness*, *level of cash on bank account* and *structure of backlog of orders* (average percentage of votes lower than 5%). The problem arises with a small group of factors with average percentage of votes between 5% and 10%, namely *operating profit* and *product diversification*. Their importance seems too high to neglect them during decision – making, but their influence does not seem to be extremely high. This issue will be commented in concluding remarks.

The expert evaluations of utility of examined indexes for each of the significance ranks from 1 to 4 have been presented in an aggregated form on Fig. 2 below.

**Fig. 2: Share of significance ranks 1, 2, 3, and 4**



Source: Gawlik, R., own elaboration based on research

## CONCLUDING REMARKS

The synthesis of study results indicates that at this stage of research it is difficult to build one synthetic index of actual condition and development level of international companies. The analysis resulted in finding some indexes of wider utility, regardless of company's profile. It seems though that making decisions only on their basis could prove too simplistic. Thus the author proposes to explore further this field, particularly in the area of multicriterial decision – making in turbulent environments. The idea of expert questioning itself seems to bring satisfactory results, but there is a need of applying more sophisticated scientific apparatus for analysis. The Analytic Hierarchy Process seems to be an appropriate method for pair – wise comparisons of various types of economic indexes by group of independent experts under a pre – adopted set of criteria. Should external circumstances or criteria importance change, the method offers the possibility of adapting the hierarchy of indexes in form of a simulation in new business environment. The research outcomes in this area will be published in subsequent scientific works.

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