

## COMPETITIVE RISK AND BALANCED SCORECARD ANALYSIS IN THE GLOBAL CRISIS SITUATION

*The paper reviews issues of competitiveness under the conditions of global economic and financial crisis, while emphasizing on the importance of business analysis. The author presents different analytical tools in order to measure competitiveness, risk and predict the future success or failure of the company. Special attention is paid to balanced scorecard analysis, which could offer important insights into the company's health and potential. The author also presents why and how some methods can be improved in order to serve better in the contemporary economic and financial conditions*

Competitiveness in the contemporary world has become a great issue. Leading economies are no longer capable of keeping investment and production in their own lands and are struggling to stop the increasing size of outsourcing and offshoring. So a crucial question arises as how to keep countries' economies vital and competitive. The European Union has been offering funds for increasing competitiveness to its members for years. Unfortunately without much success. Results show that only about 30% of the offered means are invested.

Being competitive should not only be about the lowest price, but should also include quality, service, logistics, eco-friendliness and other non-financial issues. But an important point is; how to measure the health of an economy or firm?

In the economic and financial literature there are a lot of tools for analyzing. However many are not really helpful and some are out-of-date. This paper will try to focus on the best analytical tools for measuring and valuation of financial and economic health, risk, failure/success ratios through Z-score analysis, SWOT-issues, and balanced scorecard analysis.

The paper begins with a critical look on the current financial business analysis of the companies and continues with some fresh and new ideas, with the help of interesting figures. At the end a small conclusion summarizes the main outcomes.

### **The importance of business analysis for measuring and comparing competitiveness and risk**

Financial business analysis of the company (FBA) requires a decisive improvement, both in theoretical and in applied aspect. Its vital scientometric parameters, such as subject, object, methodology and techniques need to be reviewed and developed from the microeconomic point of view.

At the end of the first decade of the 21 century distancing from the elementary methods and models and approaching methodological and practical tools, matching the internationally approved standards applicable in the field of financial business analysis in Europe and all over the world are required.

Application of methodological basics of the comprehensive economic analysis system, so widely applied in Bulgaria in the past, is already trivial and definitely not sufficient.

From the theoretical and applied point of view it is necessary to make a transition to integration of financial business analysis into a common pattern with the most advanced and internationally recognized methodologies and techniques of Financial Business Analysis.

Strictly speaking: The subject of the financial business analysis (FBA) of the enterprise (company) is microeconomic business processes, related to capital transformations and capital consumption at the stages of marketing, investment, operative and financial activity and to the system of protection against insolvency (bankruptcy) of the enterprise (the company).

The object of the FBA is micro-economy, respectively the status, the management and utilization of assets, capitals – financial and business activity of the enterprise (the company).

The FBA method is substantiated from philosophy epistemological point of view (see Popper, K. The Logic of Scientific Discovery, London and New York, Routledge, 1980) between its subject and object, which as of a certain point in time is subject to study by applying the available and developing set of techniques.

Under the conditions of a dynamic market situation the processes of integration of analysis with accounting, auditing, financial management, strategic, operative budgeting are taking place within the frame of company management.

The constantly changing market situation required theoretical, methodological and organizational development of different types of financial business analysis. Unfortunately, until lately they remained inert and meaningless to a great extent.

The business metric of FBA provides a strong subordination of the key types - preliminary (basic), operative, operative-predictive, current and follow-up financial business analysis. The types of analysis are integrated on the principle of financial and business situations modeling (in horizontal, vertical and integral aspect). “Financial Business Analysis” – FBA must be regarded in three-dimensional, situational and dynamic aspect, implicit to the nature of market competition situations.

The types of analysis should not be considered isolated from each other. Up-to-date methods have to be found out for their matching, following the rules of the contemporary business metric (see Andy Neily, “Business metric”). Their mutual merger in a flexible system of methods of continuous (follow-up), sensor and situational analysis, corresponding to the type of company functioning (horizontal, vertical time- and space wise) will put an order and reasonable limitations to the pseudoscientific and falsifications thereof.

The ideas about the FBA method must be more determined and clear. The methods of induction, deduction, transduction, analysis and synthesis ought to be integrated with the economic intuition method (groundlessly underestimated, being difficult for mastering, not acquirable by everybody, but extremely powerful and of a decisive importance for resolving of challenging situations – subject to financial business analysis).

Methods of factor business analysis need active improvement. Some FBA methods show certain disadvantages and in some cases excessive conditionality (method of chain substitutions, method of arithmetic differences – old and not very reliable methods, showing disadvantages which are not easy to avoid). Application of mathematic methods is still occasional, very often improperly understood, thus becoming a groundless goal for not well-prepared users.

The methodology and techniques of company financial business analysis must follow the following principles:

1. Methodological consideration of the company static and dynamic – integration of periodical, operative, current and follow up analysis;

2. Provision of opportunities for monitoring of dynamic market situation. Distinction of company strengths and weaknesses, the place in the market situation and strategy towards the competition – “SWOT Method of Analysis”.

3. Adjustment of analysis methodology according to the key importance of the profit and profitability as leading criteria for efficiency assessment. Profit positioning as a vital subject of analysis.

4. Analysis and management of expenses, income, financial results (CVP Method of Analysis).

5. Analysis of assets, capital, cash flows (Cash Flow Analysis), equity analysis, capital budgeting, capital structure, analysis of the entire strategic and operative budget process, analysis of investment, manufacturing, marketing, financial activity and financial stability of the company (Z-Score Method of Analysis).

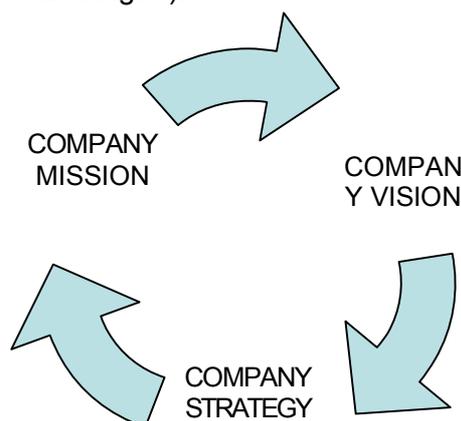
6. Analysis of internal company business processes must be updated and definitely to leave the frames of elementary methods, known in the end of 19<sup>th</sup> and early 20<sup>th</sup> century. It is necessary to develop the FBA as a situation modeling, optimization and forecasting system.

The current situation of market economy and the development of company micro-economy make it necessary to adopt a flexible and effective methodological pattern of financial business analyses. The key components and methods of market business metric must be included implicitly (See fig. 1).

Financial Business Analyses of the company must be based on an integrated systematic and well balanced approach. Company business must be analyzed and managed as a complex object, with numerous operations, aspects and parameters focused thereon. Analysis must follow internationally approved principles of a balanced system of parameters, i.e, the so called “Balanced Scorecard Business Analysis”, developed by Prof. D. Norton and Prof. R. Kaplan

The philosophy of the Balanced Scorecard Analysis approves the key importance of financial parameters for business evaluation, but also it emphasizes the importance of their mandatory interpretation together with non-financial parameters.

The objective is to analyze in detail the relationship and the dependence between the determining aspects of company business by answering three or respectively five major questions (See Fig. 1 and Fig. 3).



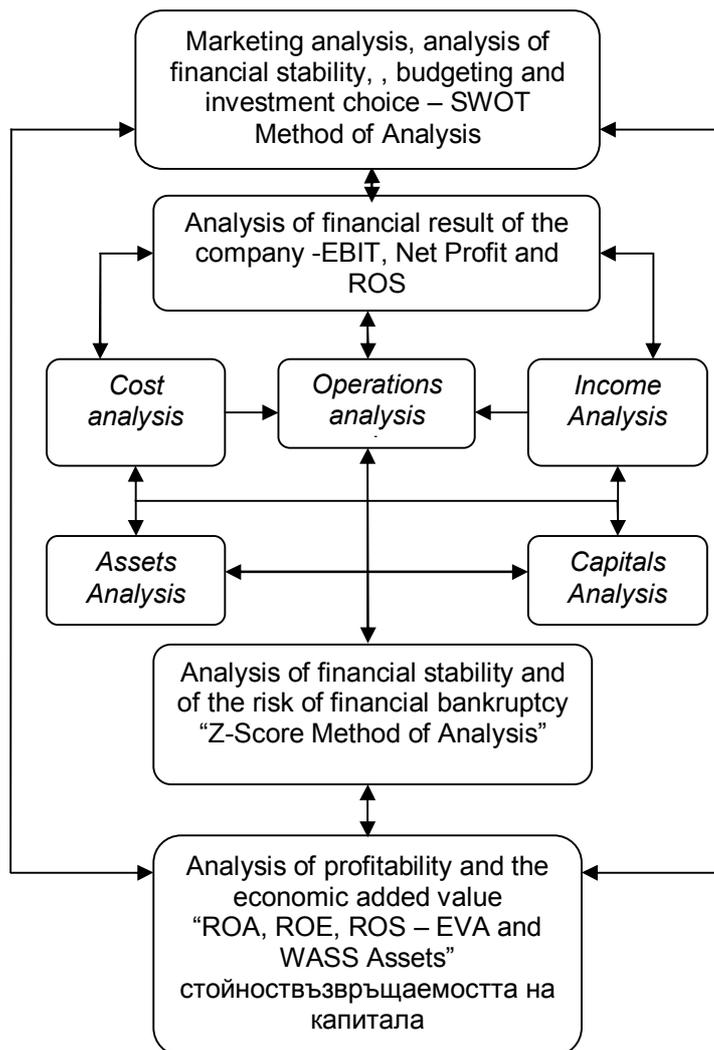
**Figure 1:** Aspects of companies

The conventional methodological pattern of financial business analysis (see fig. 2) may be considerably modified in compliance with the requirements and the specific features of the market-oriented economy.

The traditional methodological analysis pattern (see fig. 2) may be significantly improved. These improvements derive from the positioning of the enterprise on the market in comparison to the main competitors, determination of company specific features “SWOT and SWOT – Pest Method of Analysis”, the key role of financial results, financial stability and profitability.

Significant modifications derive also from the required new approach to the analysis of expenditures, profit, respectively the relation “Cost – Value – Profit” (CVP Method of Analysis), etc.

Considerable modifications of analysis methodology and techniques are required by the new factors and factor models, related to the micro-economic interpretation of subjects of analysis: threshold values, production functions and their analysis.



**Figure 2:** Increasing competitiveness trough analysis of all aspects of the company

The method of preliminary “reading” of data, the ‘method of chain substitutions which is full of conditions, disadvantages and risks, the elementary “difference simulation” and the appeared from nowhere “taboo” against the real methods of business metrics and the modern econometrics hold the development of financial business analysis.

Only a modern interpretation of the scientific metric coordinates of financial business analysis – object, subject and method from micro-economics point of view, the scientific philosophy (epistemology) would have highly promote the development of the science. Currently, there are serious grounds for the “accounting analysis” to be treated as another useful for some apologist of the accounting thinking – “accountants”, not well sized “falsification” (see “Dictionary of Philosophy”, V. Kulov, “Concepts of philosophy”, Sofia 2009 and V. Kulov “Problems of scientific methodology in the light of the vews of Karl Popper”, Sofia 2005.)

It is not quite regular elementary, although important, accounting techniques, related to the system of accounting calculations and double-sided recording to be identified without good reasons and therefore they are difficult to be justified, as “methodology of the modern accounting analysis” (k.m.M.T.).

Any “scientific falsifications”, such as: “Accounting analysis”, “Managerial Accounting Analysis”, “Managerial Accounting Investment Analysis”, “Accounting Assets and Liabilities Optimization” would “shape up” the scientific mess, caused by the

scientific metrics vulnerability of some scientists – accountants, whom, for ethical reasons we are not going to mention here and now. They and what they have done and they keep doing undisturbed will be valued and judged on their merits by the history.

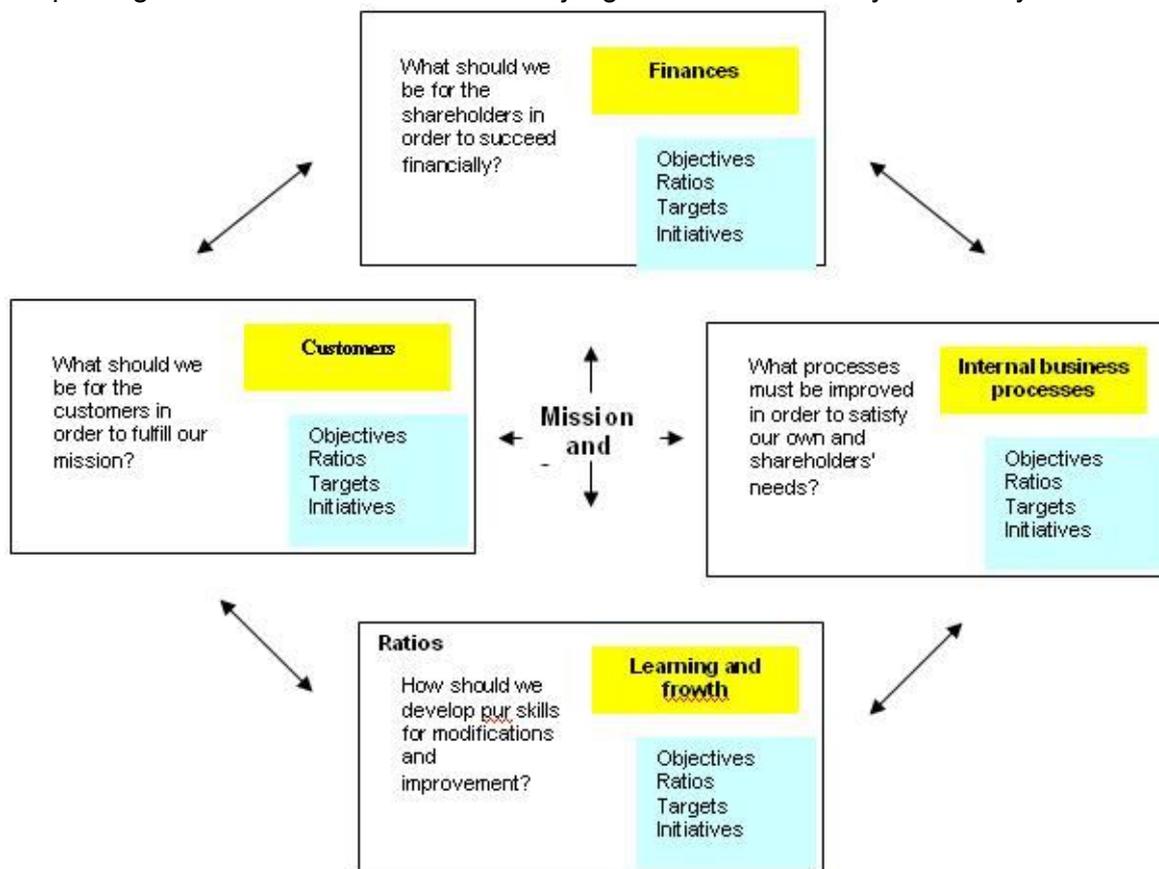


Figure 3: Balanced Scorecard Business Analysis Method

We would not like to condescend under the decent level by exercising judgment; instead we would prefer to go ahead. Science must be developing. An extremely long way of development is ahead before the financial business analysis as a serious science, which is related to global changes and a difficult farewell to overages and stereotypes, the price of which is still being paid in the country. The decisive change is ahead. This change must be both in terms of science and in terms of education. This change should not be a “lipstick”, but rather on the merits. Such a science, like Financial Business Analysis may not any longer stay on positions which have been up-to-date at the end of 19<sup>th</sup> and early 20<sup>th</sup> century.

Financial business analysis of the enterprise (the company) – FBA must be oriented definitively to the principles and methodology and techniques of “**Balanced Scorecard Method of Business Analysis**”. Thus FBA would get rid of inertia, lack of sufficient market flexibility, standard patterns, one-sided comparisons and elementary set of tools for quantitative methods of business metrics and econometrics, being currently in use. We would have to be concerned about this fact both in the process of education of bachelor-degree students and master-degree students. Regrettably, for some weird reasons, the processes of changes and updating of methodology are delayed and will be delayed for further indefinite time.

Analysis and evaluation of the risk of financial bankruptcy (bankruptcy) is carried out by different methods of the so called discriminant study of functions:

1. "Z-Score Method of Analysis" and "ZETA- Score Method of Analysis" of Prof. Dr. Edward Altman.

2. "Z-Score Methods of Analysis" of Prof. Fulmar, Prof. Springate, Prof. Tafler and Prof. Lis, etc.

For the basic functional model of "**Security Financial Method of Accounting Analysis**" of Prof. Edward Altman (USA) the following groups of ratios are used:

Liquidity Ratios

1. Absolute liquidity ratio

A.L.R. = (Cash + Marketable securities) : (Current Liabilities)

Critical range: (0.2 – 0.5)

2. Acid test ratio, Quick ratio

A.T.R. = (Cash + Marketable Securities + Accounts Receivable) : Current Liabilities

Critical range: (0.3 – 1.0)

3. Current Ratio

C.R. = (Current Assets) : (Current Liabilities)

Critical range: (1.0 – 2.0)

4. Net Working Capital Ratio

Nwc = (Current Assets) – (Current Liabilities)

Critical range: (> 0)

Gearing ratios – Capital structure Ratios (Financial stability ratios)

5. Equity to Total Assets

E.T.A. = (Equity) : (Total Assets)

Critical range: (0.5 – 0.8)

6. Total debt to total assets

$R_{td:ta}$  = (Debts : Assets)

Critical range: ( 0.2 – 0.5 )

7. Long-term debt to total assets

$R_{ltd:ta}$  = (Long-term debt : total assets)

8. Total debt to equity

$R_{td:e}$  = (Total debt) : (Equity)

Critical range: ( 0.25 – 1.0 )

9. Long-term debt to fixed assets

$R_{ltd:fa}$  = (Long-term debt) : (fixed assets)

10. Times interest earned

$R_{tie}$  = (EBIT) : (Interest on credits)

Critical range: ( > 1 )

11. Return on sales, %

Kros = (Net Profit) : (Net Sales)

12. Return on shareholders' equity, %

Kroe = (Net Profit) : (Equity)

13. Return on current assets, %

Krca = (Net Profit) : (Current Assets)

14. Return on fixed assets

Krfa = (Net Profit) / (Fixed assets)

15. Return on investments

Kroi = (Net Profit) / (Equity + Long Term Debts)

16. Net working capital turnover, number of turns

Ktrn = (Net Sales) / (Net Turnover Capital)

Prof. Edward Altman has developed and is continuously improving the discriminant analysis methods known as “**Z-Score Method of Analysis**” in order to achieve a higher sensitivity based on a specific functional connection:

$$Z = 0,012X_1 + 0,014X_2 + 0,033X_3 + 0,006X_4 + 0,999X_5 ,$$

Where

$X_1$  = ratio of company own non-fixed assets to total assets.

$X_2$  = Ratio of retained earnings to total assets.

$X_3$  = Ratio of earnings before interest and taxes (EBIT) to total assets.

$X_4$  = Ratio of market value of ordinary preferred shares (financial assets) to book value of total liabilities (total debts)

$X_5$  = Ratio of net sales to total assets.

In a modified from Dr. Altman’s formula is, as follows:

$$Z = 1,2X_1 + 1,4X_2 + 3,3X_3 + 0,6X_4 + X_5$$

Enterprises (companies), the Z-Score parameters of which are equal or higher than 2,99 may be treated as “financially stable”, and the companies with Z-score parameters lower than 1.81 show a high level of risk of bankruptcy (the so called “financial failure”). The appropriate minimum level is fixed to 2.675.

The British scientist Prof. Dr. Lis offers an alternative functional model of discriminant analysis of bankruptcy risk, as follows:

$$Z = 0,063 x_1 + 0,092 x_2 + 0,057 x_3 + 0,001 x_4$$

Where

$X_1$  – working capital / total assets;

$X_2$  – profit from sales / total assets;

$X_3$  – retained earnings / total assets;

$X_4$  – equity / borrowed capital

The limit minimum of Z-parameter, showing the risk of bankruptcy according to Prof. Lis is 0.0347.

The discriminant model of risk analysis, suggested by Prof. Fulmer is presented by the following functional connection:

$$H = 5,528 x_1 + 0,212 x_2 + 0,073 x_3 + 1,270 x_4 - 0,120 x_5 + 2,335 x_6 + 0,575 x_7 + 1,083 x_8 + 0,894 x_9 - 3,075$$

Where

$X_1$  = Retained Earnings from previous years/ Total Assets

$X_2$  = Net Income from Sales / Total Assets

$X_3$  = Gross Income / Equity

$X_4$  = Cash Flow / Total Debt

$X_5$  = Long-term Debts / Total Assets

$X_6$  = Current liabilities / Total Assets

$X_7$  = Log (short-term tangible assets)

$X_8$  = Working Capital / Total Debt

$X_9$  = Log (gross profit EBIT + taxes and fees) / (taxes and fees)

Prof. Gordon Springate suggest a model of analysis, evaluation and forecasting of the risk of financial bankruptcy of the enterprise having the following functional form:

$$Z = 1.03 x_1 + 3,07 x_2 + 0,66 x_3 + 0,4 x_4$$

Where

$X_1$  = Working Capital / Total Assets

$X_2$  = (Net Income + Taxes and fees) / Total Assets

$X_3$  = Net Income / Current liabilities

$X_4$  = Net income from Sales / Total Assets

The interpretation of the discriminant functional-accounting analysis model of Prof. Springate shows that when  **$Z < 0,862$** , the enterprise would suffer a failure with a much higher level of probability.

The forecast of financial bankruptcy according to Prof. Springate is of a guaranteed level of feasibility 92.5% within one year.

British scientists Prof. R. Taffler and Prof. G. Tishow suggest an accounting-mathematical interpretation of Prof. Dr. Ed. Altman's approach by the following four-factor functional model:

$$Z = 0,53 x_1 + 0,13 x_2 + 0,18 x_3 + 0,16 x_4$$

Where

X1 = Income from sales / current liabilities,

X2 = Current assets / liabilities,

X3 = Current liabilities / total assets

X4 = Net income from sales / total assets

Where  $Z > 0,3$  the risk of bankruptcy is low, and where  $Z < 0,2$  the risk is high.

For the analysis and evaluation of the risk of financial insolvency (bankruptcy) the practically applied model is reduced to the following general form:

$$Z = a_0 + \sum_{i=1}^n a_i \times f_i,$$

where:  $a_0$  and  $a_i$  – coefficient of regression

$f_i$  – factors, determining financial stability of the enterprise.

Ass.Prof. Dr. Ognyan Simeonov and Ass. Prof. Dr. Evangeliy Andronov suggest an original development and improvement of French traditions in "SWOT Method of Analysis", through three-dimensional models of the competitive environment within the frame of „Balanced Scorecard Analysis” ( See Fig. 4):

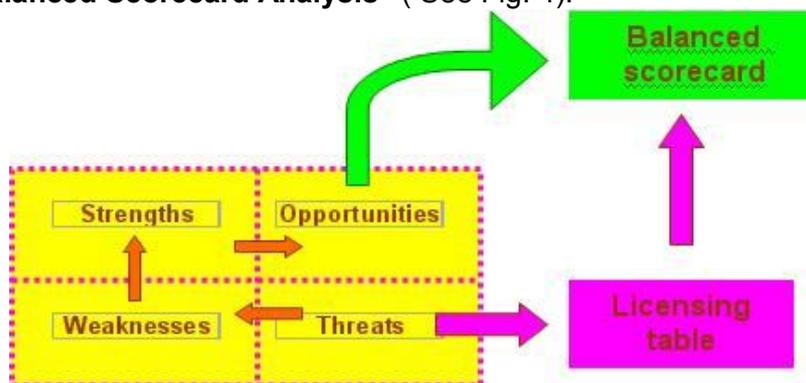


Figure 4: Balanced Scorecard, SWOT and licensing table

“Licensing table” (See Ass.Prof. O. Simeonov and Ass. Prof. E Andronov\_ – diagram of competitive relationships – “Board table” (See fig. 5 and fig. 6A and fig. 6B).

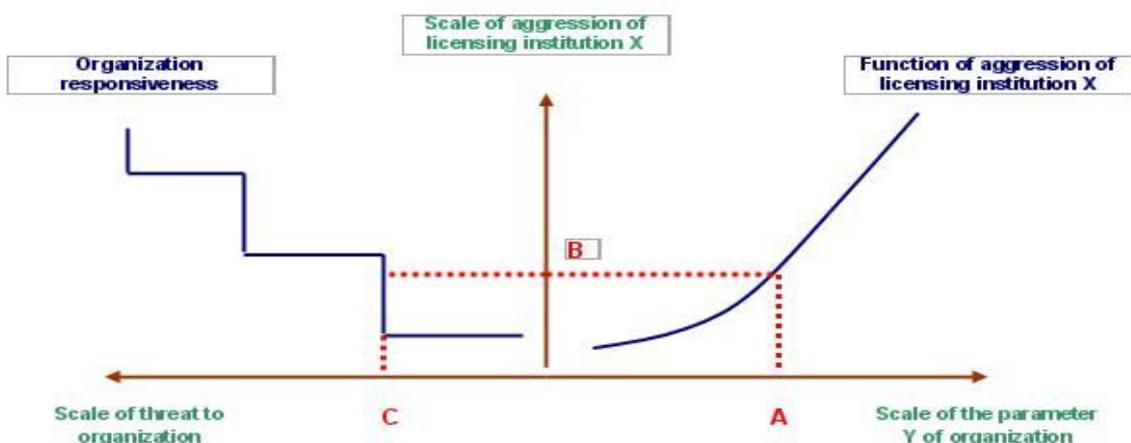
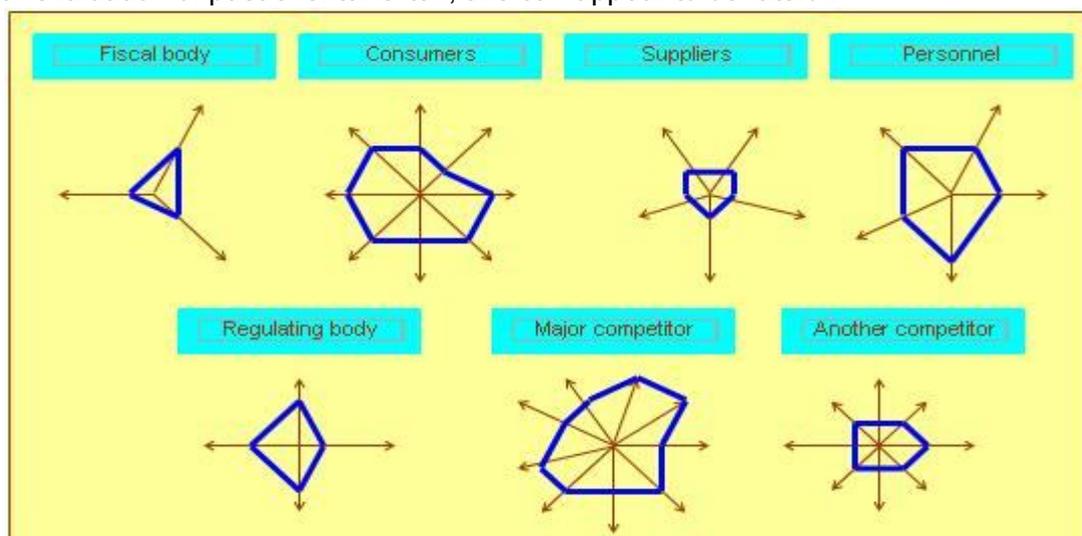


Figure 5: Forms of aggression by different market subjects in terms of one or several parameters and company responsiveness thereto

Localized surfaces corresponding to the threats by every competitor and market subjects putting in risk and endangering the company may be compared to “eyes following the business” of the company. The adjustment of the strategy of counteraction would have to be reflected by minimizing the area of the so called “risk open eyes”.

Financial business analysis must be integrated within the frame of “**Balanced Scorecard Method of Analysis**” with the methodology of positioning of the “**SWOT Method of Analysis**” and with the method of “**Security Financial Business Analysis**” in a market and risky environment. It is high time to abandon the methods, dealing only with evaluation of past events. Often, this can appear to be fateful.



**Figure 6:** Board table of company analysis, representing the level of risk and the threats by different market subjects

**Conclusion.** The paper showed key aspects of analytical tools for measuring and valuation of competitiveness through SWOT-analysis, Z-score analysis for failure/success predictability, risk evaluation, as well as some fresh approaches to aggressiveness and market response.

Keeping economies and firms vital, well capitalized, working and thus competitive is becoming one of the most important policy points for contemporary economies. Many countries and alliances such as the European Union are aware of this difficult task and are trying to motivate their firms. Past findings show that these instruments do have an effect, but not as big as desired. New approaches are needed. And with them: tools to measure their effect. The presented tools offer possibilities to evaluate the success of those means. But they are not enough for the constantly changing and very complex world.

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