

# Complex Assessment of Essential Financial Indicators in Corporate Governance

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## ABSTRACT

The **corporate governance** foremost is determined by the expected competitive advantage-oriented changes as well as by the modern and effective management techniques that stimulate the sustainable growth. The complex evaluation of the efficiency of corporation performance may be also indicated as prerogative when reasoning the strategic business decisions and corporate strategy in general. The research aims to generalize the major principles for evaluation of a whole of financial indicators and to construct the adequate assessment models. The framework for complex assessment according to essential financial indicators, identified for a particular corporation and oriented essentially to the multiple criteria evaluation methodology, is presented below. For certain companies from the selected industry (their target group), as basic evaluation criteria, such indicators as profitability, asset and investments return, leverage and liquidity levels, as well as cash flows equilibrium dividend yield - may be accepted. It is expedient to detail and purposeful group these indicators. For these purposes, Simple Additive Weighting (SAW) method of quantitative evaluation by multiple criteria is suggested. According to the adequate evaluation models, an overall index is determined with respect to the significance of the primary indicators estimated by expert way. In this assessment process, both the primary criteria (i.e. financial indicators) and the indexes of their groups are also covered. The complex assessment of financial indicators reflecting corporate governance effectiveness is presented for Lithuanian corporation case to illustrate the application of the analytical research results. Such quantitative assessment process is particularly relevant under conditions of dynamic changes of the surrounding macro factors affecting corporate strategy. It is characterized by adaptability (according to the whole of evaluation criteria for an assessment in specific conditions); and it is applicable to the complex investigation of the quality and effectiveness of corporate governance. The algorithmic procedures of proposed assessment process may be incorporated into business management and strategic decisions support system.

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## 1. INTRODUCTION

The problems of entrepreneurship development, also its transformation processes in conditions of dynamic changes of the surrounding macro factors affecting corporate strategies are widely discussed in scientific research works. Simultaneously, the investigation of interconnections between input of entrepreneurship competitive advantage on country's economic advancement, on the one hand, and country's macroeconomic situation on particular company's performance results, on the other hand, is relevant (Fleisher 2003). It is stressed that the development foremost must be oriented on the expected competitive advantage-oriented changes as well as the modern and effective management techniques that stimulate the sustainable growth. The complex evaluation of the corporation performance efficiency may be also indicated as prerogative when justifying the strategic business decisions and corporate strategy in general (FSF Principles ..., 2009). The analytical approach to these processes may be defined as an important object of scientific research.

Of course, the primary financial ratio analysis based on accounting information and financial statements is usually carried out in order to assess the company's financial management performance. The financial statements of companies are examined for comparison in the particular sector that reflects their financial performance characteristics. Many authors emphasize that the relative financial performance indicators have great importance in assessing corporate's financial position, operating results, cash flows, forecasting the probability of bankruptcy. Their analysis leads to a critical look at the performance in comparison with its main market competitors, at the corporate financial position to provide options for improving and adjusting the strategic management decisions (Ramanathan, 1985; Mackevicius, Valkauskas, 2010). Together, it is highlighted that too little attention is paid to accounts of cash flows and changes in equity of companies as a basis to calculate the more relative performance indicators. However, such an analysis should be seen as a complex evaluation of the initial phase.

Inadequate accounting and financial statements not properly prepared, and the accompanying analysis of the company's financial performance may effect on predictable development, the company's value creation, to damage the interests of the owners. Of course, as the result of the absence of reliable information, the company can't make effective strategic management decisions, and investors can't make the right choice of investment property. The papers highlighted the need for a comprehensive analysis approach that comprises the choosing of

compound indicators for measuring the effectiveness of intangible resources management (Zigan, Zeglat, 2010; Harrison, Rouse, and De Villiers, 2012).

R. Laporta, F. Lopez-De-Silanes, A. Shleifer and R. Vishny (2002) examined the effects of legal protection of minority shareholders and of cash-flow ownership by a controlling the valuation of corporations. They found the evidence of higher valuation of companies in countries with better protection of shareholders minority and in companies with higher cash-flow ownership by the controlling shareholder.

A meaningful interpretation of financial innovation, according to which the intermediaries engineer securities with cash flows (preferred by some investors), was presented by N. Gennaioli, A. Shleifer, and R. Vishny (2012). They modified assumptions concerning the investors who neglect certain unlikely risks as well as their demand on securities with safe cash flows. As was stressed, the financial intermediaries cater to these preferences and beliefs by engineering securities perceived to be safe but exposed to neglected risks. Because the risks are neglected, the security issuance is also excessive. When investors eventually recognize these risks, they must fly back to the safety of traditional securities, and markets become fragile, even without leverage, precisely because the volume of new claims is excessive.

In order to meet the wider information needs of users, it is possible to perform an analysis of the financial indicators totality divided into three groups, i. e. evaluate: 1) the financial condition, 2) performance results, 3) cash flow sustainability. However, in financial analysis, the primary indicators of these groups should be purposefully selected according to the object of analysis, in addition to taking into account what the purpose and objectives is raised for analysis. For example, P. Williams and E. Naumann (2011) stresses the importance of the need for expanded investment analysis, because it has the effect (as one of the major sources of evaluation), on the decisions not only of the company owners, but also customers, suppliers, investors. Besides, the balanced scorecard system provides that the assessing the company's financial situation has to be dealt with four critical aspects of the company (customers, innovation, domestic and financial). A key feature of the integrated performance measurement system is that it includes both the absolute and relative financial and non-financial indicators (Lopes, 2013). In addition, the emphasis is done on integration of the performance optimizing, the simulation of financial situation and Balanced Scorecard calculating methodologies. Thus, it can be an important tool for identifying areas for improvement, ensuring continuous operation to be more efficient.

In the process of an adaptation of the performance analysis content, the indicators can be tuned according to the company's marketing strategy, i. e. under the balanced scorecard system formed after an investigation of targeted marketing activities. This may be the subject of an analysis of the some indicator groups, which mainly affects the marketing strategy (Mackevicius, Valkauskas, 2010):

1. Gross and net profit analysis;
  - Asset profitability analysis;
  - Return on investment analysis;
  - Dividend analysis.
2. Market share growth analysis;
  - Sales growth analysis;
  - Cash flow equilibrium analysis;
  - Solvency and liquidity analysis.
3. Analysis of long-term liabilities;
  - Analysis of the relative short-term debt;
  - Relative operating cost analysis;
  - Leverage analysis;
4. Analysis of the employment of financial resources;
  - Bankruptcy probability analysis;
  - Investment risk analysis;
  - Analysis of the cost-minimization options.

In addition to widespread horizontal, vertical and the relative financial analysis, also logic, econometric, heuristic (psychological), statistical (correlation and regression analysis) and other specific analysis methods are applied. Meanwhile, the considerable attention is also given to the relative financial indicators and systems analysis methodology development. So, I. Kotane and I. Kuzmina-Merlin (2012), examining the SMEs financial results for improving the assessment problems in Latvia, highlights that they usually use the average indicators of the branch calculated by adequate technique in order to evaluate the creditworthiness of the borrower financial institutions.

When expertizing a whole of financial indicators, there are few preconditions to be improved:

- the calculations of financial indicators to be used were developed many years ago and they are considered to be universal: they do not consider the size of the company and the form of business organization;
- the quality of information included into financial statements is most complex issue based on which the financial coefficients are calculated;
- the specific requirements of international standards are not always satisfied, and sometimes there are not clear whether financial statements were drafted according to the international standards.

As a result, the information on financial statements and financial coefficients of companies calculated on this basis sometimes can mislead the investors taking into consideration the conditions mentioned above (Principles ..., 2010). The size of corporation and financial cycle stage is also important to take into account. As it is known, the most characteristic feature of SMEs is limited financial resources and difficulties in receiving them. Due to it, for example, the receiving of bank loan has become very topical in the context of borrowed capital. Therefore, some authors propose the inclusion of indicators of borrowed capital in general, such as bank loans, and exclusively carry out the company's credit policy evaluation (Kotane, Kuzmina-Merlino, 2012).

On the other hand when studying corporate governance quality, and particularly the relation between governance level and performance results, W. Khiari, A. Karaa, and A. Omri (2007) have achieved that the probability of being in the cases is more important when the firm size, the dividend yield and the return on equity (ROE) are high. While a high leverage level decreases the chance to be in the non-performing group. They concluded that the highest performing system is characterized by an inside control efficiency and an inside financial control efficiency. The non-performing system is characterized by a managerial discretion, an ownership concentration, a dominance of the board by the CEO and a manager entrenchment.

In this context it is clear that the formation of generalized assessment principles still remains actual, taking into account the quantitative assessment of the general methods and orienting it on MCDM system. Actually, the available potential for the theoretical and methodological quantification of social processes can be a conceptual basis when addressing this problem (Zvirblis, Buracas, 2012a, 2012b).

*This paper aims to create the major principles for evaluation of a whole of financial corporate governance indicators and to construct the adequate assessment models. The object of research is corporate governance. The methods of research are systemic analysis of scientific publications and quantitative assessment methods, multiple criteria SAW method.*

## **2. THE SUBSTANTIATION OF COMPLEX EVALUATION METHOD**

The examination of quantitative evaluation methods in general, the Analytic Hierarchy Process (AHP) method can be distinguished in particular; it is based on the relationship scale use and application when evaluating the effectiveness of auditing services. But the problem is that the important precondition - to maintain a coherent scheme of priorities for the entire hierarchical structure - is often violated. The essence of the priorities' synthesis is in the setting of general priority for local priorities what requires the politically correct formulation of the task (Mizrahi, Ness-Weisman, 2007).

Without a doubt, the multiple methods are those of the most promising. They may be divided into four main groups: ranking, grouping (classification), evaluation and optimization methods, of which the group of evaluation methods is closest to lifting tasks and corresponding to test object is. The *Simple Additive Weighting (SAW)*, *Complex Proportional Assessment (COPRAS)* as well as *Technique for Order Preference by Similarity to Ideal Solution (TOPSIS)* methods are distinguished within this group. The application of these methods are reviewed in detail by W. Zhang and H. Yang (2001), F. Peldschus (2007), E. K. Zavadskas and Z. Turskis (2011), M. Doumpos, C. Gaganis, and F. Pasiouras (2012).

The complexity of the tasks and an extremely wide range of criteria determined the methods of multicriteria choice. These techniques include models, the application of which requires the relevant information, and evaluation conditions can be described as deterministic. In principle, the evaluation is based on the criteria that characterize the object of evaluation matrix (based on statistical data or expert assessments) and the criteria significance (weight) matrix.

The quantification of social processes is widely applicable, especially for the integrated values of SAW method. But this method allows you to combine the original variables (factors) of different nature and to determine the integrated size when all indicators are maximized. In addition, it is assumed that given variables (factors) are mutually independent, as it was revealed by W. Zhang and H. Yang (2001), V. Podvezko (2011), R. Ginevicius, V. Podvezko,

and Sh. Bruzge (2008). The sum of the normalized indicators' values weighed (no dimensional) is calculated by such a way, and the best option is usually in line with the highest value of the integrated criterion. In particular, it is important to develop adequate criteria and indicators system by using the SAW method, which requires, in principle, to examine the evaluation methodology taking into account the specifics of the problem solved.

As the absolute and relative indicators with various dimensions can be covering the maximized indicators ( $R_{ij}$ ), they are translated into the appropriate comparison, i. e. normalized rates  $r_{ij}$ , in the general case, when applying this method, for example, by the following formulas (Podvezko, 2011):

$$r_{ij} = \frac{R_{ij}}{\sum_{j=1}^m R_{ij}} \quad (1)$$

where  $r_{ij}$  – normalized value of  $j$ - indicator within  $i$ - est group.

Under this approach requirements, the minimized indicators can be covered if they are transformed into maximized. The values of minimized indicators ( $\min R_{ij}$ ) can be transformed to normalized rates  $r_{ij}$ , for the general case by such way:

$$r_{ij} = \frac{\min R_{ij}}{R_{ij}} \quad (2)$$

The formula (2) shows that the value of minimized index (the lowest possible within grading system) takes the maximum value in this way to the unit. Basic model of the criteria that determine a certain level of the measured object, can be expressed at the general case for the whole evaluation using SAW method (Zhang, Yang, 2001; Zvirblis, Buracas, 2012a, 2012b), in this way:

$$Y(I) = \sum_{i=1}^n a_i x_i \quad (3)$$

where  $Y(I)$  - general evaluation index;  $X_i$  - scores of the evaluation criteria describing general index  $a_i$  - the parameters of the significance of criteria' direct effect on the amount of integral index  $Y(I)$  (when using this method, an important condition is: the parameters of the significance must be set in the range  $[0,1]$ , and their sum must be equal to 1),  $n$  - number of evaluation criteria in the system.

Importance of the criteria can be set so solely on the basis of the calculations using objective information for and by expert way (Ginevicius, Podvezko, Bruzge, 2008). The reliability of expert evaluations is achieved by an appropriate technique, for example, according to the values  $W$  of the concordance coefficient and to the significance of  $\chi^2$  parameter for this factor (with determining the concordance coefficient  $W$  and the Pearson's chi-square test - the significance parameter  $\chi^2$  of concordance coefficient for the achievement of reliability of expert examination data; Kendall, 1979).

As pointed out by the authors of *COPRAS*, this method is applicable to the quantification of multiple processes, possible alternative solutions (considered a discrete number of decision / project making alternatives), as well as when it comes to coverage of the maximized and minimized evaluation criteria describing the evaluated object (Zavadskas, Kaklauskas, 1996). The impact of the maximized and minimized evaluation criteria (indicators) by *COPRAS* method on the generalized result is assessed individually. If only maximized criteria are applied and their values are distributed by the classical normalization (amount of normalized values for each criterion equal to one), the results of calculation by *COPRAS* method should coincide with the obtained results of the evaluation by *SAW* method. So, the applying of *COPRAS* is foremost associated with an arrangement of compared alternatives in their preference order as well as reasoning the most effective one (Kaplinski, Peldschus, 2011; Podvezko, 2011; Zavadskas, Turskis, 2011).

*TOPSIS* method may be applied when making the comparative assessments (if decision or project making solution alternative has been determined by the shortest distance to the ideal one and the greatest distance from the negative one). It is based on specific aggregation function representing „closeness to ideal” (vector normalization is applicable); however, it does not consider the relative importance of these distances (Kaplinski, Peldschus, 2011).

The several methodological emphasis, that are relevant for the evaluation of social processes according to multicriteria methodology, have to be distinguished, such as:

- Characteristic of each approach
- The highest possible number of alternatives evaluated
- The maximum number of parameters, which describes the options
- Formation of the system of primary and integrated evaluation criteria
- The adequacy and reliability of objective information necessary for assessment
- The authenticity of the assessment process formalizing
- The options of the assessment process description by quantified primary criteria
- Incorporation options of expert evaluation into a comprehensive process of evaluating

- The opportunities of making the professional group of experts
- The methodological possibilities of the results' reliability analysis

Further analysis of the optimization problem (in the sense of decision results) of an investigated system in perspective, it is appropriate to focus also on the *objective function* method when the alternative is supposed to be optimal when it satisfies the two conditions. First, it is one of the expected variants, and second, it ensures that the proclaimed goal of maximum (or minimum) could be reached. In general, in order to find the optimal solution (by mathematical programming), you should create a model of optimization, especially involving mathematical expressions (dependencies), describing the main characteristics of the simulated object, indicators and relationships between them, also their system.

In addition, this model includes an objective function which expresses the choice of optimality criteria, as well as additions describing the specific conditions that must be satisfied when seeking of the problem solution. The system of constraints is expressed as a system of equations and inequalities which reduces the set of possible options. Linear programming problem is solved if the objective function is linear and all the restrictions are described by linear functions (i. e. the recorded equations and inequalities are of the first degree). This is the mathematical programming area with great application value and the theoretical field best explored; although the setting of adequate objective function, foremost in finance management, is often problematic.

It was concluded, following the analysis carried out, that the *SAW* method is applicable by priority for the complex valuation of financial indicators that reflects a state of corporate governance. The key to his advantage in this case is that the *SAW* method, in principle, allows one to evaluate the indicators of a corporation analyzed separately, in addition to but not including the alternative options and their compositions.

### **3. PRINCIPAL PROVISIONS FOR ASSESSMENT AND ADAPTED MODELS**

It is essential to include the whole of financial indicators relating to corporate governance of a particular company, when comprehensively assessing the adequate specificity of the performance in each sector. The financial indicators of several target groups, of course, should

be included into the system of criteria. Thus, the partial criteria that determine the integrated criterion and, in turn, covering the initial evaluation criteria (financial ratios), which has significant influence over the size of the assessed value, should be included into complex system of assessment.

Some authors considering the information provided by industrial companies identified the operational profitability, financial condition, financial management and resource management indicator groups (Mackevicius, Valkauskas, 2010). The indicators describing level of financial risk leverage can be singled out in this context; one should also pay attention to the cash flows equilibrium. It can be assumed that this is the main criteria for the general case. However, their whole has to be supplemented by specific criteria and indicators that are meaningful and revealed in the SWOT analysis, and for the identification and assessment of competitors in the market at the specific and the more significant cases.

The request to maximize the indices of the company's activities (when forming its financial performance database) for a complex is often problematic to fulfill in practice. Therefore, the present correlative assessment models have been adapted according to criteria and indicators as covering the whole, i. e. according to the information stored in the database. In principle, the assessment (by means of the said *SAW* method) of the multitude of essential financial indicators (as primary evaluation criteria), two indicator pillars are expedient to compile. Together it should be noted that description of these pillars can draw attention to the 5-8 most important (identified) primary indicators as evaluation criteria.

A whole of typical indicators has been analyzed taking into account not only the scientific publication findings, but also the global economic competitiveness indicators included into few pillars by World Economic Forum (*WEF*). The following integral indicators for example, for Lithuania in 2011-2013, may be usually indicated: creation of value chain breadth, firm-level technology absorption, availability of latest technologies, spending of companies on R&D, state of cluster development. They, of course, are important whereas reflect corporate governance level in a country in general. At the same time it must be noted that we focus on an assessment of financial performance indicators.

The expanded financial indicator pillars adopted for manufacturing corporations and compiled taking into account these preconditions, also the results of an accomplished initial investigation, are presented below. It should be emphasized that covering financial indicators are calculated mainly according to the audited financial statements of companies.

Pillar A:

- A1. Sales growth rate
- A2. Gross margin of profitability
- A3. Net margin of profitability
- A4. EBITDA
- A5. Sales profitability ratio
- A6. Price earnings ratio
- A7. Return on assets (ROA)
- A8. Return on investment (ROI)
- A9. Dividend yield.

Pillar *B*:

- B1. Solvency ratio
- B2. Liquidity ratio
- B3. Coverage ratio
- B4. Cash flow to revenue ratio
- B5. Cash flows equilibrium
- B6. Stock turnover ratio
- B7. Market value of securities
- B8. Scored risk level of securities.

The pillar (*A*) of essential financial indicators was focused on indicators having quantitative expression. There are included mostly the traditional indices - sales growth rate, gross and net margin of profitability, ROA, ROI, sales profitability ratio. The more complicated financial indicators (both calculated using data of company's profit and loss statement, determined on basis of appropriate market data) have been included into pillar (*B*), i.e. solvency, liquidity, coverage ratios, cash flows

equilibrium (by common analysis, the cash flows equilibrium doesn't applied before). Such indicators as the stock turnover ratio, market value of shares and bonds as well as scored risk level of securities may be indicated mostly for companies which shares are listed on the market.

The determination of overall index relatively (comparative) reflecting corporate governance effectiveness is based on the models suggested for indexes of pillars of financial indicators identified for particular corporation and having different impact significance on dimension to be measured. The models in this case express the direct relationships in investigated system; values of the primary financial indicators must be transformed into dimensionless and maximizing.

Firstly, the pillar index  $A(I)$  (as first partially integrated criterion in the complex evaluation process) applying the SAW method must be estimated, and the following background model may be employed:

$$A(I) = \sum_{i=1}^{i=r} a_i A_i; \sum_{i=1}^{i=r} a_i = 1, \quad (4)$$

where  $A_i$  - normalized value of the primary criterion (sales growth rate, margin of profitability, ROA, ROI, etc.);  $a_i$  - the significance parameter of a primary criterion  $A_i$  according to impact on the pillar index  $A(I)$ ;  $r$  - number of primary criteria determining the pillar index  $A(I)$ .

In analogous way, the integral index  $B(I)$  of the pillar  $B$  (as second partially integrated criterion) may be defined on basis of an equation:

$$B(I) = \sum_{i=1}^{i=s} b_i B_i; \sum_{i=1}^{i=s} b_i = 1, \quad (5)$$

where  $b_i$  - the significance parameter of impact of a primary criterion  $B_i$  (coverage ratio, solvency ratio, cash flows equilibrium, stock turnover ratio, etc.) on the index  $B(I)$ ;  $s$  - number of primary criteria determining the pillar index  $B(I)$ .

To calculate the  $B(I)$  index according to the model (5) the normalized values of certain primary criteria of the pillar  $B$  (not having quantitative expression) should be determined by expert way, without quantification (among them the cash flows equilibrium), as mentioned above, in the range [0,1] when

1 is consistent with the absolute highest rating. Besides, the dimensionless values fixed on derivative estimate basis may be also applied.

The value of the index  $CGE(I)$  (overall score) may be determined on the basis of indices  $A(I)$  and  $B(I)$  previously calculated in accordance with their weights. When you have two primary criteria pillars and SAW method is applied, it can be determined according to the following simplified model:

$$CGE(I) = k_a A(I) + k_b B(I); \quad (6)$$

where  $k_a$  and  $k_b$  - weights (determined by expert ranking) of the partially integrated criteria  $A(I)$  and  $B(I)$  respectively describing the degree of their impact on the overall index  $CGE(I)$ ; the sum of weights must be equal to 100 percent.

The oneness of the proposed models is also in the using of different, not predetermined, significances of primary criteria and in the adequate differentiation of pillar weights.

As we can see, such approach supposes hierarchical assessment process to be defined. On the first stage, primary evaluation criteria have been examined, the pillars of essential (identified) financial indicators have been configured, the indices of these pillars and overall index have been calculated on basis of presented models, using SAW method on the second stage. So, we propose the complex assessment technique for indicators relatively reflecting the effectiveness of corporate governance in particular corporation; it is developed according to the principles of multiple criteria evaluation methodology in MCDM system and may be incorporated into a company's decision support system.

#### **4. ASSESSMENT CASE: THE LITHUANIAN FURNITURE MANUFACTURING COMPANIES**

Complex assessment of financial performance indicators was carried out using the principles developed for the case of two competing Lithuanian furniture manufacturing companies in Vilnius (VLB) and Klaipeda (KLB) according to their semiannual financial statements for 2013. Their shares are listed on OMX Vilnius' Stock Exchange, and were assessed as a whole in accordance with the identified evaluation criteria (Table 1). The assessment models (based on SAW method) were adapted according to identified evaluation criteria for each pillar.

The normalized values of identified (maximizing) criteria  $[A_i]$  and  $[B_i]$  for the general case can be calculated by the formulas presented above (their variants are presented by Podvezko, 2011). In this case, they were calculated by simplified way:  $[A_i]= A_i / A_{i \max}$  and respectively  $[B_i]= B_i / B_{i \max}$  ( $A_i$  and  $B_i$  - the values of the financial indicators for respective A and B pillars of the companies;  $A_{i \max}$  ( $B_{i \max}$ ) - maximum (highest) value of the indicator between comparable (competing Lithuanian and foreign markets) companies. If value of any financial indicator of the company is the highest among comparable companies, then its normalized value is equal 1.

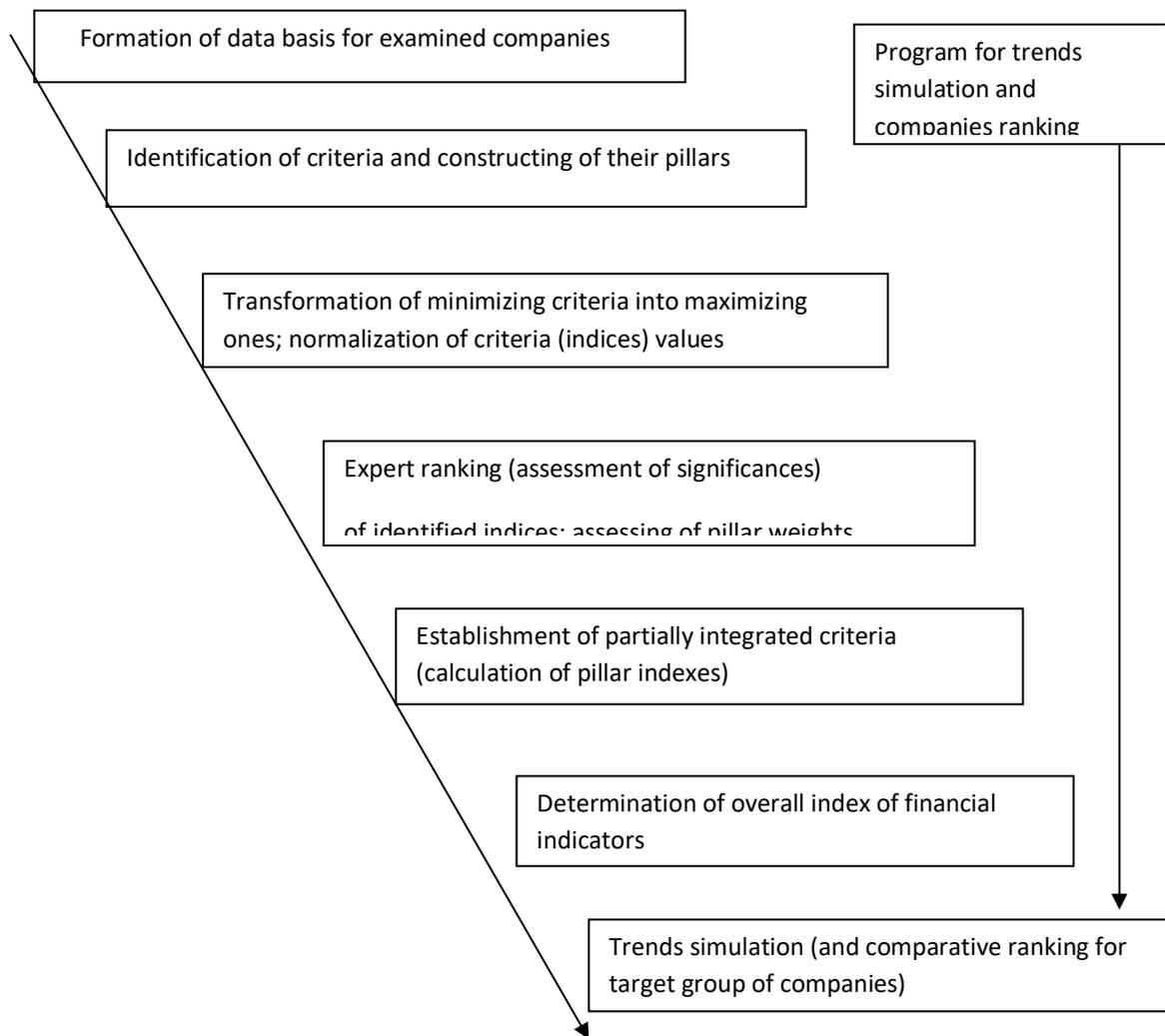
**Table 1:** Results of the estimation of pillar indices for Lithuanian companies in first half of 2013 by SAW method

Pillars of identified financial indicators	Symbol	Normalized value for (VLB)	Normalized value for (KLB)	Significance parameter
<i>Pillar A</i>				
Gross margin of profitability	A2	0.73	0.69	$\alpha=0.26$
Sales growth ratio	A1	0.81	0.77	$\alpha=0.21$
ROA	A7	0.59	0.63	$\alpha= 0.18$
ROI	A8	0.69	0.65	$\alpha= 0.18$
Price earnings ratio	A6	0.88	0.87	$\alpha=0.17$
<b>Index of pillar A</b>	<b>A(I)</b>	<b>0.74</b>	<b>0.72</b>	
<i>Pillar B</i>				
Liquidity ratio	B2	0.78	0.74	$b=0.28$
Cash flow to revenue ratio	B4	0.71	0.75	$b=0.22$
Coverage ratio	B3	0.81	0.69	$b=0.19$
Solvency ratio	B1	0.88	0.83	$b=0.18$
Stock turnover ratio	B6	0.77	0.71	$b=0.13$
<b>Index of pillar B</b>	<b>B(I)</b>	<b>0.79</b>	<b>0.75</b>	

Identified indicators have uneven weights, reflecting their different influence of profitability, liquidity and other indicators on overall index. This were ranked by seven experts (including the authors), and calculated concordance coefficient  $W$  (Kendall, 1979) revealed the consistency of their opinions. The calculation of a parameter  $\chi^2$  (distribution of concordance coefficient) would be superfluous procedure according to the number of indicators identified in each group. Achieved value of  $W = 0.74$ , when the compatibility is considered satisfactory if  $W = 0.7-0.8$ . The weights of pillars were evaluated adequately: for pillar A weight 40%, for pillar B – 60% (table 1).

Evaluation results for the corporations (VLB and KLB) are as follows: index of pillar A respectively is 0.74 and 0.72, index of pillar B is 0.79 and 0.75 (Table 1). Calculations of the overall index according to model (6) show that it is equal 0.74 for KLB and 0.77 for VLB, mainly due to better scores of such indicators as gross margin of profitability, sales growth ratio, coverage ratio, ROI; scores for cash flow to revenue ratio and ROA reduced the gap.

Figure 1 reflects the essential procedures of typical multicriteria evaluation process. Both options can also be simulated providing by primary indicators, as well as by their groups, also according to their different impact on the significance of the parameters. The comparative ranking for target group of companies according to partially integrated criteria as well as overall index of financial indicators can be performed by including the additional programming block.



**Figure 1:** Typical algorithm scheme of the multiple criteria assessment procedures

It should be emphasized that *COPRAS* method is worthy to be applied in order to evaluate and rank the companies in this sector in Lithuania, according to key financial performance indicators. The principles of mathematical expressions using this method would be as follows (Podvezko, 2011):

$$K_j = S_{+j} + \frac{S_{- \min} \sum_{j=1}^n S_{-j}}{S_{-j} \sum_{j=1}^n \frac{S_{- \min}}{S_{-j}}}; \quad (7)$$

where  $K_j$  – the complex evaluated value of  $j$  – th company;  $S_{+j}$  and  $S_{-j}$  – respectively the sums of normalized values of maximizing and minimizing primary evaluation criteria.

$$S_{+j} = \sum_{i=1}^m \tilde{r}_{+ij}; \quad (8)$$

where  $S_{+j}$  - sum of weighed characteristics of  $\tilde{r}_{+ij}$  for maximized indices  $i$  the best value for which is the largest for all corporations;

$$S_{-j} = \sum_{i=1}^m \tilde{r}_{-ij}; \quad (9)$$

where  $S_{-j}$  - sum of weighed characteristics of  $\tilde{r}_{-ij}$  for minimized indices  $i$  the best value for which is the minimal for all corporations;

The values for  $\tilde{r}_{-ij}$  are consecutively calculated by formula:

$$\tilde{r}_{ij} = \frac{r_{ij} q_i}{\sum_{j=1}^n r_{ij}} \quad (10)$$

where  $x_{ij}$  - value of  $i$  –th index on  $j$ - th corporation;  $q_i$  – significance of šio this index;  $n$  – number of variants (corporations) to be compared.

The proposed evaluation process is characterized by the adaptivity of the original and integrated evaluation criteria to meet the specific evaluation. This is an important methodical tool for uncovering corporate reserves in order to improve their governance and financial performance and, as result, to ensure the sustainable development of the company.

## 5. CONCLUSIONS

The entrepreneurship development also its transformation problems as well as interconnections of country's macroeconomic situation with the particular company's performance results are widely discussed in scientific research works. However, it is not enough of studies dedicated to the complex assessment technique of indicators reflecting **corporate performance** efficiency; the adequate quantitative evaluation methodology is still not applied in this field.

We find that quantitative multiple criteria evaluation methods that are the basis of the *MCDM* system are well suited for complex assessment of an integral whole of financial corporate performance indicators. Actually, the adequate assessment technique should be incorporated into decision support system of a company. It means the determination of the overall dimension for financial indicators having different importance parameters for increasing company's competitive strategy. The main principles and assessment technique may be also based on a set of financial indicators identified for particular corporation (as primary evaluation criteria) selected into task pillars (as partially integrated criteria). It should be emphasized that essential key financial indicators are calculated by using audited company's balance sheet and profit (loss) statement.

The analysis of integrated quantitative assessment methods revealed that at present case it is appropriate to carry out using the *Simple Additive Weighting (SAW)* in a while, and the *Complex Proportional Assessment (COPRAS)* is appropriate for comparative evaluation of competing companies of a whole sector. It allows the *SAW* method to be applied despite the different nature of the criteria (i. e. both quantitative and qualitative their parameters) when they are maximized and to set the integral measure according to their differentiated significance.

Whereas a whole of financial indicators in particular company is assessed, the proposed technique is based on the models adequate to applied *SAW* method. The key to his advantage in this case is that the *SAW* method, in principle, allows one to evaluate the indicators of a corporation analyzed separately, in addition to but not including the alternative options and their compositions. This approach is backed-up on the consecutive procedures of a hierarchical assessment system. Foremost the normalization procedure of primary financial indicator values must be also fulfilled, the impact significance parameters of primary criteria may be calculated using the *AHP* method or assessed by expert ranking method. Further, the indexes of each pillar have been established and, in turn, the generalized measure - the overall index - has been determined, applying promising assessment models. The oneness of this

technique lies also in the applicability of different significance parameters of criteria and weights within the task pillars.

We noted that the *COPRAS* method may be also recommended when the case of the target group of competitive companies in industry is investigated with purpose to evaluate and rank the companies in the sector with the essential activities of financial indicators reflecting corporate governance effectiveness. The performed complex assessment of Lithuania's furniture manufacturing companies VLB and KLB in this study in accordance with measurement technique reasoned for the first half of 2013 that overall (relative) index of identified primary financial indicators was scored 0.77 and 0.74 respectively (theoretically maximum score may be equal to 1). As it was indicated, the overall index for company VLB prevail firstly with better scores of such indicators as gross margin of profitability, sales growth ratio; for this company, and the score of cash flow to revenue ratio is worse.

An algorithm of computer-generated assessment process may be recommended to apply when modeling the different trend effects (in particular, with the scenarios formation). The application of such complex assessment technique is significant also for making reasoned company's strategic decisions also for the growth of competitiveness and at the same time for sustainable development of a company.

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