''A EVALUATION OF THE CORPORATE ENVIRONMENT FOR THE FORMATION OF ITS EFFECTIVE EXPANSION STRATEGY''

KOLORIYO B. G

ABSTRACT

The successful development of a company's expansion strategy, which determines the most effective corporate performance, is especially full of its environment which is defined by multidimensional assessment criteria acting in numerous directions. The incorporation of all such criteria into one generalizing and sophisticated dimension is enabled by multi-criteria assessment methods. The article focuses on the theoretical justification for the appliance of multi-criteria evaluation methods and their application in identifying the particular and forecast environmental situation of the corporate and provides an answer for the formation of an efficient expansion strategy using the complex evaluation results of the corporate environment. Through the examination of a particular company by employing the probabilities of the proposed analytical solution the expansion strategy is made for effective development.

keywords; Evaluation of the corporate environment, strategy planning, corporate culture**.**

1. Introduction

For a corporation to develop successfully, it's to continuously adapt to the ever-changing environment and to know the potential impact of environmental factors on the performance results of the corporate as early as possible. The company's environment must be fully assessed to develop a good strategy. This assessment of where the corporate is now in terms of its environment determines the selection of strategy. additionally to the evaluation of the particular environmental situation of the corpo-

rate, it's necessary to know how the environment may affect company performance within the future. The article aims to supply a quantitative evaluation of the particular and forecast environment of the corporate using the multi-criteria evaluation methods and, supported the findings, to come up with a good expansion strategy for the corporate.

A company's environment could be a complicated and sophisticated phenomenon from the purpose of view of developing an expansion strategy. to guage it quantitatively a hierarchy-based system of criteria (Ginevičius, 2007) must be developed. to the current end, the standards utilized in theoretical models (Evans and Short, 2013, O'Shaugnessy, 2014, Everett, 2014, Zavadskas and Turskis, 2011, Bocken et al., 2015 and others) which affect the company environment in terms of strategy development were analyzed. A company's environment was defined in an objective and structured manner employing a hierarchical system of 43 different criteria, with different impacts on a typical result (Table 5). As criteria are multi-dimensional and act in several directions, multi-criteria assessment techniques enable them to be merged into one complex dimension which may then be accustomed develop a method.

2. Materials and methods for the formation of an efficient company expansion strategy

Values and weights must be set for the factors of the company's environment for the applying of the multi-criteria assessment methods in developing its expansion strategy.

To set weights for the factors subjective methods are used where specialists' (experts') opinions constitute the premise of assessment (Ginevičius and Podvezko, 2003, Ginevičius and Podvezko, 2004a, Ginevičius and Podvezko, 2004b, Hokkanen and Salminen, 1997, Zavadskas et al., 2004, Ginevičius et al., 2004) yet as objective ones – where specific values of weights counting on the structure of the block of criteria details (Hwang and Yoon, 1981, Ustinovičius, 2001). Furthermore, subjective and objective weights are often generalized and combined in an integral manner (Beuthe and Scanel-

la, 2001, Fan et al., 1977, Ustinovičius, 2001). of those three, the subjective measurement is that the main one; however, it requires high expert qualification since it determines the accuracy of their evaluation. Besides, if they're not sufficiently qualified, contradictory results is also obtained. For this reason, criteria weights could also be adjusted to the multi-criteria assessment, if the degree of compatibility of expert assessment is fixed. this is often determined by the coefficient of concordance which is calculated supported ranking the compared objects. The results of expert evaluations is that the matrix (i = 1 m; j=1 r), where m is that the number of compared criteria (objects), and r is that the number of experts. Experts can assess the first moment in numerous ways. For the assessments, any scale of measurement will be applied, for instance, measuring in criteria units, percentage, unit fractions, ten-grade system, or Saaty's pair-wise comparison scale (Saaty, 2008). To calculate the dispersal coefficient of concordance, however, only the ranking of expert criteria are often used. The ranking is that the procedure where the foremost important criterion has attributed the rank which is up to one point, the second criterion in terms of importance is given two points, etc. and also the least important criterion is given rank m; where m is that the number of compared criteria. Equivalent criteria are attributed to the identical value, namely, the arithmetic means of ordinary ranks.

The results of the determination of criteria ranks are often applied in practice if a sufficient level of compatibility of expert opinions is about. Expert opinions and attitudes to the matter being solved often differ and might even be controversial. The compatibility of opinions is set by the coefficient of concordance which is calculated supported the ranking of compared criteria. The dispersal coefficient of concordance was defined by Kendall (1970). the concept of the coefficient was linked to the quantity of ranks of every criterion ci about all experts:

$$c_i = \sum_{j=1}^{r} c_{ij}, \tag{1}$$

to be precise, (it was linked) to the variation of dimensions ci from the whole mean by the full sum of squares S (the analog of dispersion):

$$S = \sum_{i=1}^{m} \left(c_i - \bar{c} \right)^2. \tag{2}$$

The total mean is calculated consistent with the formula:

$$\bar{c} = \frac{\sum_{i=1}^{m} c_i}{m} = \frac{\sum_{i=1}^{m} \sum_{j=1}^{r} c_{ij}}{m}. \tag{3}$$

If S could be a real amount of squares calculated following formula (2), the concordance coefficient W is calculated following the subsequent formula (Kendall, 1970):

$$W = \frac{12S}{r^2 m(m^2 - 1)}. \tag{4}$$

If the opinions of experts are harmonized, the worth of the concordance coefficient W is near 1, whereas, if the assessment differs considerably, the worth of W is near zero.

Kendall (1970) proved that if the quantity of objects m > 7, the importance of the concordance coefficient is also determined using the criterion χ2:

$$\chi^2 = Wr(m-1) = \frac{12S}{rm(m+1)}. \tag{5}$$

A random value is distributed per the distribution χ2 with the degree of freedom. the quantity of freedom degrees v of distribution χ2 doesn't rely on the amount of experts r because it's wont to measure the difference between the entire number of rankings only. The critical value is set in keeping with the amount of importance α (in practice, the worth α usually equals to 0.05 or 0.01) chosen from the table of the distribution χ2 with the degree of freedom. If the worth of χ2 calculated in keeping with formula (5) is over, then the evaluations of the experts are coordinated (Podvezko, 2005).

The basis of quantitative methods is that the matrix of statistical data (or expert assessments) of the ratios that characterize the objects under comparison and ratio weights ωi, (i = 1,…, m; j = 1,…, n), where m – is that the number of ratios, n – the amount of objects (alternatives) under comparison. Applied quantitative multicriteria

methods show the character of every ratio – maximizing or minimizing. the simplest values for maximizing ratios are the best values and for minimizing – all-time low. the standards of qualitative multicriteria methods most frequently combine the non-dimensional (normalized) ratio values and therefore the weights of ratios ωi. Most methods use different specific normalization or data transformation of initial data (ratio values). Each method has its own advantage and highlights different features of those values.

The typical, most know the known and widespread method is SAW (Simple Additive Weighing). The criterion Sj of this method reflects well the thought of multicriteria methods – the aggregation of ratio values and their weights into one value (Ginevičius et al., 2004, Hwang and Yoon, 1981; Ginevičius and Podvezko, 2007, Ginevičius et al., 2006).

The sum Sj of weighted normalized values of all ratios for every object j is calculated. it's determined per the formula (Ginevičius and Podvezko, 2006, Ginevičius et al., 2006, Hwang and Yoon, 1981):

$$S_j = \sum_{i=1}^{m} \omega_i \tilde{r}_{ij}, \tag{6}$$

where ω_i is the weight of ratio i; $\tilde{r}_{ij}$ – the normalized value of ratio i for object j ($\sum_{i=1}^{m} \omega_i = 1$).

The normalization of information, during this case, is feasible consistent with the formula (Ginevičius and Podvezko, 2001, Ginevičius et al., 2006):

$$\tilde{r}_{ij} = \frac{r_{ij}}{\sum_{i=1}^{m} r_{ij}}, \tag{7}$$

where rij is that the value of ratio I for object j.

The best value Sj of the criterion is that the highest value.

Using the SAW method, the maximizing criteria of data are often normalized by

(Ginevičius, 2008):

$$\tilde{r}_{ij} = \frac{r_{ij}}{\max\limits_{j} r_{ij}}, \tag{8}$$

where $\max\limits_{j} r_{ij}$– the best value of the criterion under maximization.

However, the condition precedent to applying this method may be a prior identification of the character of ratios (maximizing or minimizing) or it's possible to restructure minimizing ratios into maximizing per the formula (Hwang and Yoon, 1981, Ustinovičius and Zavadskas, 2004, Ginevičius and Podvezko, 2004a, Ginevičius and Podvezko, 2007, Ginevičius et al., 2006):

$$\tilde{r}_{ij} = \frac{\min_j r_{ij}}{r_{ij}}, \tag{9}$$

where rij is that the value of ratio I for object j when very cheap value of the ratio will acquire the best value adequate to one.

The environment of the corporate for the formation of a good expansion strategy is split into the particular environment and therefore the forecast environment. to create a good strategy, the environmental ratio of the corporate calculated because the ratio of the forecast to actual environmental values is proposed:

$$P = \frac{P_f}{P_a}, \tag{10}$$

where Pf is that the value of the forecast company environment and Pa is that the value of the particular company environmental situation.

The effective expansion strategy of the corporate is decided by evaluating the corporate environment and is chosen looking on the worth of the environmental ratio of the corporate. The research has shown an in depth relationship between expansion strategies and therefore the environmental situation of the company: with the deterioration of the environmental situation and shrinking markets the necessity for diversification increases and, conversely, with the market expansion the necessity for the said strategies

decreases. When the market is well established, diversification is beneficial in certain markets (Ginevičius, 2009). Thus, if the worth of the environmental ratio of the corporate is a smaller amount than one, diversification strategies are applied. With the advance within the environmental situation and market expansion, the importance of integration and concentration increases; when the markets shrink the importance of the said strategy decreases, so if the worth of the environmental ratio of the corporate is one, integration strategies are applied. If the worth of the environmental ratio of the corporate is over one, concentration strategies are applied.

3. Findings of the inquiry

The data structure of the system of the company's environment criteria to develop a good strategy provided in Table 5 was wont to draw up a ranking questionnaire which had to be completed by highly qualified experts of strategic management who had to guage the importance of the rankings of the environment criteria (internal and external, competitive advantage, financial situation, structure of the industry, economic, technological, social and political environment). The importance of the company's environment criteria was measured by 10 highly qualified specialists. Every criterion was given a rank from 1 (to the primary most significant) to m (to the smallest amount significant). The compatibility of experts' opinions was also verified.

The ranking results of the standards of the company's competitive advantage are provided in Table 1.

Seq. no.	Expert\Criterion	1	2	3	4	5	6	7	8	9	10	The total of the rankings	Ranking
1	The share taken by the industry	8	6	9	3	9	1	1	1	6	4	48	6
2	The general level of the company's competences	7	7	3	7	2	5	2	9	4	6	52	7
3	Technological advantage of the company	6	4	1	4	1	7	4	2	3	2	34	1
4	Flexibility	3	3	2	2	3	6	3	6	2	9	39	2
5	The potential to compete by means of price and quality	2	5	6	5	4	3	5	5	5	1	41	3
6	The strength of the brand	9	2	4	6	7	2	6	3	1	3	43	4
7	The level of client satisfaction	1	1	7	1	5	4	7	7	7	5	45	5
8	The potential of the manufacturing capacity	4	8	8	8	8	8	9	4	8	7	72	8
9	The company's access to funding	5	9	5	9	6	9	8	8	9	8	76	9

Table 1. The competitive advantage criteria – ranking results

Referring to Table 1, it absolutely was determined that the sum of the variations of squares S, which was calculated in step with formula (2), amounts to S = 1700, the co-efficient of concordance W calculated in line with formula (3) amounts to W = 0.283, the worth of lęχ2 in line with formula (5), which is χ2 = 22.667, exceeds the critical χ2 = 15.507 with the amount of importance α = 0.05 and degree of freedom v = 9 – 1 = 8. All this shows that the opinions of the experts were harmonized.

Table 2. The weights of criteria of competitive advantage

Seq. no.	Expert\Criterion	1	2	3	4	5	6	7	8	9	10	Mean of weights
1	The share taken by the industry	0.1	0.12	0.04	0.09	0.09	0.06	0.08	0.07	0.04	0.1	0.079
2	The general level of the company's competences	0.06	0.08	0.02	0.08	0.08	0.05	0.07	0.06	0.03	0.06	0.059
3	Technological advantage of the company	0.2	0.17	0.3	0.16	0.2	0.3	0.2	0.21	0.5	0.19	0.243
4	Flexibility	0.19	0.16	0.3	0.15	0.19	0.29	0.15	0.2	0.15	0.18	0.196
5	The potential to compete by means of price and quality	0.15	0.15	0.2	0.15	0.15	0.08	0.14	0.2	0.1	0.17	0.149
6	The strength of the brand	0.14	0.15	0.06	0.14	0.1	0.08	0.13	0.09	0.1	0.15	0.114
7	The level of client satisfaction	0.13	0.14	0.05	0.11	0.1	0.07	0.12	0.08	0.05	0.12	0.097
8	The potential of the manufacturing capacity	0.02	0.02	0.02	0.07	0.05	0.04	0.06	0.05	0.02	0.02	0.037
9	The company's access to funding	0.01	0.01	0.01	0.05	0.04	0.03	0.05	0.04	0.01	0.01	0.026

Table 3. Min and max values of criteria of actual competitive advantage for the Event of a good expansion strategy.

Seq. no.	Expert\Criterion	1	2	3	Mean of min and max values
1	The share taken by the industry	–	–	–	11.0
2	The general level of the company's competences	60;80	70;100	40;80	71.7
3	Technological advantage of the company	50;70	40;60	40;80	56.7
4	Flexibility	20;40	10;30	40;80	36.7
5	The potential to compete by means of price and quality	20;40	40;70	40;80	48.3
6	The strength of the brand	20;50	30;70	30;50	41.7
7	The level of client satisfaction	70;80	50;80	80;100	76.7
8	The potential of the manufacturing capacity	70;80	70;100	40;80	73.3
9	The company's access to funding	80;90	80;100	80;100	88.3

Table 4. Min and max values of criteria of forecast competitive advantage for the event of an efficient expansion strategy.

Seq. no.	Expert\Criterion	1	2	3	Mean of min and max values
1	The share taken by the industry	11;12	11;12	11;11.5	11.4
2	The general level of the company's competences	80;80	80;100	60;80	80.0
3	Technological advantage of the company	60;70	40;60	40;80	58.3
4	Flexibility	30;40	10;30	40;80	38.3
5	The potential to compete by means of price and quality	30;50	40;70	40;80	51.7
6	The strength of the brand	20;50	30;70	30;50	41.7
7	The level of client satisfaction	80;90	50;80	80;100	80.0
8	The potential of the manufacturing capacity	70;80	70;100	40;80	73.3
9	The company's access to funding	80;90	80;100	80;100	88.3

Table 5. Weights and values of criteria of the company environment for the formation of a good expansion strategy.

Corporate environment for the formation of an effective expansion strategy	Criterion	Weight	Criterion	Weight	Criterion	Weight	Actual value	Forecast value
	Internal environment	0.387	Competitive advantage	0.418	The share taken by the industry	0.079	0.236	0.243
					The general level of the company's competences	0.059	0.187	0.196
					Technological advantage of the company	0.243	0.139	0.149
					Flexibility	0.196	0.114	0.114
					The potential to compete by means of price and quality	0.149	0.093	0.097
					The strength of the brand	0.114	0.076	0.079
					The level of client satisfaction	0.097	0.053	0.059
					The potential of the manufacturing capacity	0.037	0.037	0.037
					The company's access to funding	0.026	0.026	0.026
			Financial situation	0.582	Return on investment	0.109	0.253	0.264
					Profit margin	0.142	0.198	0.214
					Debt-to-equity ratio	0.089	0.137	0.142
					Sales	0.214	0.104	0.109
					Profitability	0.264	0.064	0.089
					Asset strength index	0.064	0.071	0.078
					Revenue by product	0.078	0.056	0.064
					Ratio between fixed and variable costs	0.040	0.037	0.040
	External environment	0.613	Structure of the industry	0.250	The company's susceptibility to R&D	0.068	0.223	0.212
					Entrance barriers	0.190	0.190	0.180
					Elasticity of demand	0.076	0.133	0.143
					Seasonality of the industry	0.038	0.108	0.118
					Level of competition	0.223	0.088	0.083
					Price level	0.056	0.076	0.062
					Size of the industry	0.143	0.068	0.068
					General risk level	0.088	0.056	0.055
					Level of profitability of the industry	0.118	0.036	0.038
			Economic environment	0.304	Interest rate	0.111	0.251	0.275
					Government expenditure	0.077	0.211	0.017
					Economic growth	0.275	0.153	0.180
					Unemployment	0.180	0.147	0.147
					Inflation	0.211	0.111	0.111
					Economic recession and its effects	0.147	0.077	0.077
			Technological environment	0.204	Patent protection	0.139	0.308	0.324
					IT developments	0.240	0.240	0.240
					R&D activity	0.184	0.184	0.184
					Energy resource prices	0.112	0.139	0.139
					Technology transfer level	0.324	0.098	0.112
Social environment	0.133		Purchasing power	0.317	0.286	0.338		
			Income distribution	0.338	0.299	0.317		
			Pace of population growth	0.196	0.196	0.196		
			Supply of labour power	0.149	0.149	0.149		
Political environment	0.109		R&D regulation	0.301	0.673	0.699		
			Government regulation	0.699	0.278	0.301		

The criteria of the financial situation, structure of the industry, economic environment, technological environment, social environment, political environment, internal and external environment were ranked within the same way.

Following the check of the compatibility of the experts' opinions in keeping with the collected data of the ranking questionnaire, a second questionnaire was designed for highly qualified experts to see the values of the analyzed criteria weights by fractions of a unit and also the technique of direct assessment was adapted.

The weights of the standards defining the competitive advantage of an organization by fractions of a unit specified by the experts are provided in Table 2. the factors of the company's technological advantage, flexibility, potential to compete using price and quality, and therefore the strength of a brand was measured because the most significant ones, meanwhile, the weights of other criteria differ only slightly. the standards of the potential of the manufacturing capacity and also the company's access to funding were indicated as having the smallest amount significance.

The weights of the factors of the company's environment for the event of a technique were measured within the same way; they're provided in Table 5 below.

Following the determination of ranks and weights which define the environment of a corporation, it's possible to hold out the quantitative assessment of the standards of the company environment for the event of an efficient strategy using multi-criteria assessment techniques.

Quantitative evaluation of the corporate environment for the formation of its effective expansion strategy started after the questionnaire on values had been prepared. The questionnaire was called for supported the structure of the indicator system of the corporate environment. Three experts of the corporate under analysis filled within the values of the company's actual and forecast environment. Since the bulk of indicators couldn't be expressed in specific units, scores on a 100-point scale were utilized in the research where the minimum value of the indicator was one and therefore the maximum value was 100. As a result, the tree experts allocated minimum and max-

imum values to all or any indicators that might not be expressed in specific units. The mean value was subsequently calculated for the standards that defined minimum and maximum values (Tables 3 and 4).

The initial data criteria provided in Tables 3 and 4 were normalized using (7–9) formulas; the results of criteria normalization are provided in Table 5.

According to the environmental normalized values and weights of the corporate for the formation of an efficient development strategy provided in Table 5, using the SAW method (formula 6) the estimated value of the particular competitive advantage of the corporate environment was 0.962 and also the value of the forecast competitive advantage of the corporate environment was 1.000.

By analogy, the values of the financial situation, structure of the industry, economic environment, technological environment, social environment, political environment, and internal and external environment were calculated. the ultimate estimated value of the particular situation of the corporate environment was 0.951 and also the value of the forecast situation of the corporate environment was 0.958. Subsequently, these may well be wont to form the expansion strategy.

The company environmental ratio is calculated (formula 10) in keeping with the particular and forecasts environmental values of the corporate estimated during this chapter. the worth of this ratio is one (1.0), therefore the integration strategy should be applied for the effective development of the corporate under analysis.

4. Conclusions

An effective corporate expansion strategy is developed after an objective assessment of its environment is administered. For this, techniques that allow a phenomenon to be objectively evaluated and decisions to be made, which might make sure the best results of corporate performance, are required.

A company's environment could be a complex phenomenon for the event of an expansion strategy. To assess it quantitatively, a data structure of the standards of a company's environment intended for the event of an efficient strategy was developed. The data structure of criteria describes the company environment well and enables the foremost important aspects of the environment to be defined in an exceedingly structured way, and therefore the impact which the analyzed criteria may need on the common result to be anticipated.

To evaluate the environment of the corporate for the formation of a good development strategy by using multi-criteria evaluation methods, all environmental criteria must be combined to one general value, the weights of the phenomenon must be identified by ranking them and verifying their compatibility, and therefore the values of the particular and forecast situation of the phenomenon must be identified which serve the idea for the formation of the expansion strategy of the corporate.

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AUTHORS AFFILIATION

KOLORIYO B. G