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MULTIPLE ATTRIBUTE DECISION MAKING MODEL FOR ANALYSIS OF THE CRISIS SITUATION IN THE ENTERPRISE

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Abstract. The Global Financial Crisis that hit the world in 2008 has influence nowadays. This Crisis has its reflection at every country in the World. And impact on Northern Europe too, particularly in Lithuania. In this situation every enterprise has to apply crisis management in its activity. The most important part of crisis management is to recognize of pre-crisis situation and diagnosis of the enterprise's efficiency. Therefore every enterprise needs to predict the onset of the crisis at the enterprise before it will threaten the bankruptcy. In this article for analyze the occurrence of the enterprise's bankruptcy is proposed to use the multiple attribute decision making model. That would take on the account all of the possible aspects to predict the bankruptcy of the company.

Keywords: crisis, crisis management, bankruptcy, prediction of the bankruptcy, multiple attribute decision making, simple additive weighting.

Jel classification: M19, C39

1. Introduction

The global financial crisis of 2008 has proved that each company must observe its financial standing and companies that it is cooperating with. According to statistical data of the Euler Hermes International Company, the number of companies on the brink of bankruptcy has increased to 54 % in the USA, to 118 % in Spain and to 56 % in Great Britain (Niewrzedowski 2009). Particularly since 2008 to 2009, the number of companies that instituted bankruptcy process increased to 52 % (from 950 to 1839 companies) in Lithuania (according to the data of the Statistics Department of Lithuania). General elevation of the bankruptcy risk in the enterprise around the world resulted in consciousness that it is necessary to introduce methods for earlier prevention of the business failure. Thus, analysis of the crisis situation in the enterprise is a matter, which is currently becoming ever more important and essential for analysis.

Many scientists have been engaged in the matter of bankruptcy prediction for the last years. There are such scientists as Beaver (1966); Moyer (1977); Courtis (1978); Ohlson (1980); Zmijewski (1984); Frydman *et al*. (1985); Jones (1987); Zopounidis (1987); Aziz *et al.* (1988); Gilbert *et al.* (1990); Gupta *et al.* (1990); Laitinen (1991); Tam (1991); Altman (1993); Theodossiou (1993); Siskos et al. (1994); Wilson *et al.* (1994); Boritz *et al.* (1995); Dimitras *et al.* (1995); McKee (1995); Serrino-Cinca (1996); Kahaya *et al.* (1999); Yang *et al.* (1999); Shumway (2001) and others among them.

Besides it, diagnostics of a business's crisis is complex process and scientists have developed various methods. We may classify these methods into three groups.

i. Analysis of the crisis situation by using financial ratios (Beaver 1966; Courtis 1987; Altman 1993).
ii. Analysis of the crisis situation by using mathematical forecasting methods (Gupta *et al.* 1990; Tam 1991; Altman *et al*. 1994; Wilson *et al*. 1994; Yang *et al.* 1999).
iii. Analysis of the crisis situation at the enterprise by using MADM methods (Zopounidis 1987; Siskos *et al.* 1994; Dimitras *et al.* 1995).

However, among those methods that mentioned above there is no a method that would be universal for all branches of the country and would be easy to use. Therefore, the main **goal** of the article is to develop a universal method for analysis of the crisis situation in the enterprise. This article presents a new method in analyzing and predicting

of bankruptcy – it is one of the methods of Multiple Attribute Decision Making, a Simple Additive Weighting method. In order to prove accurateness of the method we compared it with the method of E.Altman (1993).

The object of this article is 17 branches of Lithuania and their financial ratios within 2006 and 2010.

2. Multiple Attribute Decision Making (MADM)

Globalization of financial markets, aggravation of competition among enterprises, financial institutions and organizations as well as rapid economic, social and technological changes led to increase of uncertainty and instability in financial environment. Thus, it becomes necessary to ensure enhancement of efficiency in making of financial decisions in the formed situation, which in its turn results in extension of complexity of decisions making.

Scientists have developed various methods to solve the task: optimization, modeling, forecasting, decision support system, multiple attribute decision making, fuzzy logic and others. Multiple Attribute Decision Making (MADM) has been paid big attention lately. They are based on the development of relevant methodologies, which are used upon decision problem in situations when several contradictory factors of decisions making must be considered simultaneously (Zopounidis and Doumpos 2002; Ginevičius, Podviezko 2008; Ginevičius, Podvezko 2009; Ginevičius 2011; Ginevičius *et al.* 2008).

Various methods of MADM are a good key upon solving challenging financial problems. Multivariate nature of financial decisions was already considered by the researchers who noted that it was necessary to solve financial problems in a wider and realistic context in view of all relevant factors (Zeleny 1977, 1982; Colson, Zeleny 1979; Bhaskar, McNamee 1983; Spronk, Hallerbach 1997).

Decision-making problems consist of such stages as: identification of problems, building of alternatives, and evaluation of alternatives and identification of the best alternative for the purpose of multicriterion assessment (Simon 1977; Keeney, Raiffa 1993). This way, in order to apply multicriterion assessment there should be available quotient indices R_1, R_2, …, R_m, which characterize the process being analyzed as well as numerical values and weights (significance) of all indices. While calculating with the help of multicriterion assessment a particular importance is devoted to quantitative evaluation of indices values R_i (i=1, …, m), that is finding of weights w_i. It is related to that the degree of influence of R_i indices on the results of the analyzed process's integrated assessment is not equal.

Currently MADM methods are being widely used to solve various problems in the financial sphere: credit risk assessment, corporate performance evaluation, investment appraisal, financial planning and, particularly, these methods are used to analysis of the crisis situation at the enterprise (Zopounidis and Doumpos 2002).

3. MADM for analysis of crisis situation in the enterprise

The bankruptcy risk is mainly identified by the incapability of enterprise to pay off its debts, which in its turn may result in the liquidation (cessation of activity) of the enterprise or its reorganization (Zopounidis and Dimitras 1998). Most popular approach to analysis of the crisis situation at the enterprise is to classify enterprises to bankrupts and non-bankrupts. Statistical and econometric methods have been dominated for many years in the field of crisis situation analysis, but they have been paying big attention to MADM methods lately.

Particularly such scientists as Dimitras *et al.* (1995), Zopounidis (1987, 1995), Doumpos *et al.* (1999), Greco *et al.* (1998), Slowinski *et al.* (1999) and etc analyzed ELECTRE, UTA, UTADIS and MHDIS methods, theory of inaccurate sets and other MADM methods (Table 1.).

The key advantage of MADM methods in the analysis of crisis situation at the enterprise is that they can equally manage quantitative and qualitative characteristics of the enterprise and enable to apply fully these characteristics and aggregate the same into unified complex system for further analysis. Besides it, MADM methods allow taking of decisions under uncertainty and there is considered contribution of various composite criteria into final result. Moreover, it is of no small importance that MADM methods enable to minimize time and cash expenses on analysis, as they are easy to use.

Table 1. Applications of MADM approaches in analyzing of crisis situation

Approaches	Methods	Studies
Outranking relations	ELECTRE	Dimitras *et al.* (1995)
Preference disaggregation	UTA UTADIS MHDIS Other methods	Zopounidis (1987, 1995) Zopounidis and Doumpos (1998, 1999 a, b) Doumpos and Zopounidis (1999) Doumpos *et al.* (2002) Gupta *et al.* (1990) Doumpos *et al.* (1999)
Rough set theory		Slowinski and Zopounidis (1995) Dimitras *et al.* (1999) Greco *et al.* (1998) Slowinski et al. (1999)

4. Simple Additive Weighting (SAW) method to analysis of the crisis situation in the enterprise

In spite of great number of Multiple Attribute Decision Making methods for taking of decisions, their point visually demonstrate the method of Simple Additive Weighing (SAW).

Churchman and Ackoff (1954) firstly used SAW method to solve the portfolio choice problem. SAW method is the best known and widely used method upon multicriterion assessment of decisions making due to its simplicity.

The best alternative in this method can be obtained under the following formula:

$$K^{\uparrow} *= \{u_{\downarrow} i\ (x) | \max_{\uparrow} i\ [u_{\downarrow} i\ (x) i = 1,2, \ldots, n]\ \ | \} \quad (1)$$

Also

$$u_i(x) = \sum_{j=1}^{n} w_j r_{ij}(x), \qquad (2)$$

where:

$u_i(x)$ – utility of the *i*th alternative and i=1, 2, …, n;

w_j – weight of the *j*th criteria;

r_{ij} – normalize preferred ratings of the *i*th alternative with respect to the *j*th criteria for all commensurable units and all criteria are assumed to be independent (Tzeng and Huang, 2011).

The best value $u_i(x)$ of the criteria will be biggest, that is, the objects being compared shall be ranged in the manner of $u_i(x)$ values decrease.

Under the SAW method, the calculations are made according to the algorithm, specified in Fig. 1

Stage 1. Normalized decision matrix is identified at the 1st stage of the SAW method.

Basic information to be provided in terms of a decision-making matrix

$$P = \begin{matrix} a_1 \\ a_2 \\ a_m \end{matrix} \begin{bmatrix} a_1 & a_2 \ldots & a_n \\ a_{11} & a_{12} & \ldots a_{1n} \\ a_{m1} & a_{m2} \ldots & a_{mn} \end{bmatrix}, \begin{matrix} i = 1, \ldots, m; \\ i = 1, \ldots, n. \end{matrix} \quad (3)$$

where x_{ij} – index of *i*th alternative's efficiency with regard to *j*th criteria for all commensurable units.

Let us find the best values of each index under the formula (4)

$x_j^* \min_{jx_{ij}}$, if analysis indices can be minimized,

$x_j^* \max_{jx_{ij}}$, if analysis indices can be maximized. (4)

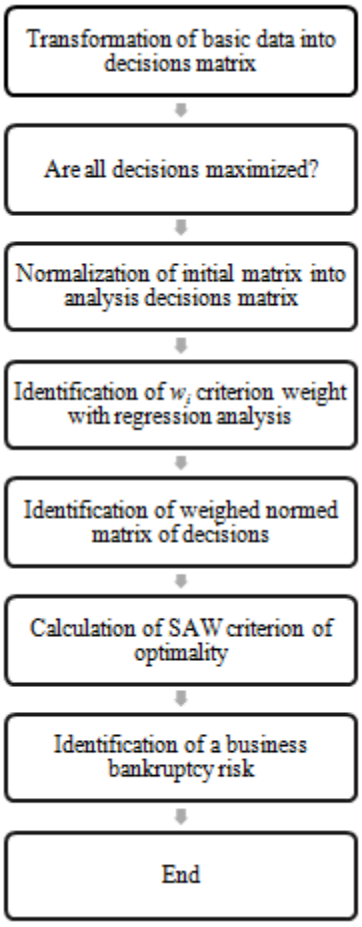

Fig. 1 Flowchart of SAW algorithm to analysis of the crisis situation in the enterprise

Normalization of parent *P* decision-making matrix into the matrix with normalized analysis indi-

ces values $\overline{P}$ (6) is held under the method of scale linear normalization according to formula (5)

$\bar{x}_{ij} = x_{ij}/\max_j [x_{ij}]$, if analysis indices can be maximized,

$\bar{x}_{ij} = \min_j [x_{ij}] / x_{ij}$, if analysis indices can be minimized. (5)

$$\overline{P} = \begin{matrix} a_1 \\ a_2 \\ a_m \end{matrix} \begin{bmatrix} \overline{x}_1 & \overline{x}_2 \dots & \overline{x}_n \\ \overline{x}_{11} & \overline{x}_{12} & \overline{x}_{1n} \\ \overline{x}_{m1} & \overline{x}_{m2} \cdots & \overline{x}_{mn} \end{bmatrix} \begin{matrix} i = 1,\dots, m; \\ i = 1,\dots, n. \end{matrix}, \quad (6)$$

where $\overline{x}_{ij}$ – normalized index of *i*th alternative's efficiency with regard to *j*th criteria for all commensurable units.

Stage 2. By using values (weighs) of w_i analysis indices significance, $\overline{P}$ column elements are multiplied by their relevant values, that is, there is identified as $\widehat{P}$ weighed indices matrix (7)

$$\widehat{P} = \begin{matrix} a_1 \\ a_2 \\ a_m \end{matrix} \begin{bmatrix} w_1\overline{x}_1 & w_1\overline{x}_2 \dots & w_1\overline{x}_n \\ w_1\overline{x}_{11} & w_1\overline{x}_{12} & w_1\overline{x}_{1n} \\ w_1\overline{x}_{m1} & w_1\overline{x}_{m2} \cdots & w_1\overline{x}_{mn} \end{bmatrix} =$$

$$\begin{bmatrix} \hat{x}_1 & \hat{x}_2 \dots & \hat{x}_n \\ \hat{x}_{11} & \hat{x}_{12} & \hat{x}_{1n} \\ \hat{x}_{m1} & \hat{x}_{m2} \cdots & \hat{x}_{mn} \end{bmatrix}, \quad (7)$$

where:

w_i – weight of *i*th criterion;

$\hat{x}_{ij}$ – normalized efficiency index multiplied by the weight of *i*th criterion.

Stage 3. By using $\widehat{P}$ matrix, we can determine efficiency criterion of each alternative a_i. Let us compose a vector of values column (8)

$$K_i = \frac{1}{2}\sum_{j=1}^{n} \hat{x}_{ij},\ i = 1,\dots,m;\ j = 1, \dots, n. \quad (8)$$

Probability of bankruptcy risk is established under the K_i value (9)

$$K^{\uparrow} *= \{a_i i \mid \max_{\top} i \ [1/n \sum_{\downarrow}(j=1)^{\uparrow} n \ [w_i i \ \bar{x}] \downarrow (ij)] \mid \}, i = 1, \dots, m; \quad (9)$$
$$; j = 1, \dots, n; \sum_{\downarrow}(j=1)^{\uparrow} n \ [w_i i = 1]$$

where:

w_i – weight of *i*th criterion;

$\overline{x}_{ij}$ – normalized index of *i*th alternative's efficiency with regard to *j*th criteria for all commensurable units.

4.1. The data

The present article processed data on 17 branches belonging to Lithuania's economy, which consists of:

Agriculture, forestry and fishing;
Mining and quarrying
Manufacturing
Electricity, gas, steam and air conditioning supply
Water supply; sewerage, waste management
Construction;
Wholesale and retail trade;
Transportation and storage;
Accommodation and food service activities;
Information and communication;
Real estate activities;
Professional, scientific and technical activities;
Administrative and support service activities;
Education;
Human health and social work activities;
Arts, entertainment and recreation;
Other service activities.

According to Statistics Department, it was established that these branches faced initiation of bankruptcy within the period of 2006 and 2010 in the quantity specified in the Table 2.

Table 2. Quantity of enterprises wherein there was initiated a bankruptcy proceedings on branches

Branches / Year	2006	2007	2008	2009	2010
Agriculture, forestry and fishing	36	29	34	27	26
Mining and quarrying	1	3	1	2	0
Manufacturing	189	128	203	308	207
Electricity, gas, steam and air conditioning supply	1	0	1	2	3
Water supply; sewerage, waste management	5	3	5	4	11
Construction	55	78	188	425	353
Wholesale and retail trade	346	234	257	414	418
Transportation and storage	38	35	79	271	175
Accommodation and food service activities	23	19	47	62	71
Information and communication	17	16	10	31	29
Real estate activities	1	7	25	75	103
Professional, scientific and technical activities	18	23	32	93	81
Administrative and support service activities	10	14	33	83	117
Education	3	1	0	5	6
Human health and social work activities	0	1	10	2	5
Arts, entertainment and recreation	6	8	15	20	18
Other service activities	5	6	10	15	8
Total	754	605	950	1839	1631

There were calculated 30 financial ratios by using financial statements of each branch, which can characterize financial standing of the branch or enterprise to the full extent. In order to calculate accurately the data under SAW method, it was decided to leave small number of ratios, which influence on the business failure to a greater degree. Significance of each ratio was established with the statistical software NCSS using regression analysis. Thus, ten important ratios upon crisis situation analysis at the enterprise are:

Gross Profit / Net Sales;
Net Income / Capital Employed;
EBIT / Costs;
Expenses / Net Sales;
Total Assets / Total Liabilities;
Working Capital / Total Assets;
Sales / Working Capital;
Revenue / Total Assets;
Equity / Total Liabilities;
Short-term Assets / Equity.

There was used correlation analysis in the same statistical software NCSS to define subjective weight of indices. One can find the analysis results in Table 3.

Table 3. Weight of indices (financial ratios)

	Financial ratio	w_i
x_1	Gross Profit / Net Sales	0,099
x_2	Net Income / Capital Employed	0,106
x_3	EBIT / Costs	0,093
x_4	Expenses / Net Sales	0,083
x_5	Total Assets / Total Liabilities	0,108
x_6	Working Capital / Total Assets	0,094
x_7	Sales / Working Capital	0,103
x_8	Revenue / Total Assets	0,109
x_9	Equity / Total Liabilities	0,111
x_{10}	Short-term Assets / Equity	0,094

4.2. Problem solution

To illustrate calculations due to SAW method there was taken branch related data, thanks to which occurrence of crisis can be reflected to the full extent. It means that Construction branch was taken as an example, wherein the number of insolvent enterprises increased to 55 % since 2008 to 2009. The calculations made by using SAW method are shown in Table 4.

The table demonstrates reduction of K_i value since 2008 to 2009 from 1.04873 to 0.77880, that is, to 27 %, which is directly related to the increase of bankrupt enterprises in number in this branch.

Table 4. Calculation of K_i value for Construction branch

	w_i	Normalized matrix					Weighted matrix				
		2006	2007	2008	2009	2010	2006	2007	2008	2009	2010
x_1	0,099	0,275	0,281	0,238	0,193	0,203	0,02724	0,02783	0,02355	0,01914	0,02007
x_2	0,106	0,216	0,231	0,126	-0,001	0,020	0,02291	0,02445	0,01336	-0,00013	0,00209
x_3	0,093	0,082	0,070	0,037	-0,036	-0,007	0,00760	0,00653	0,00344	-0,00338	-0,00066
x_4	0,083	0,152	0,187	0,190	0,258	0,221	0,01260	0,01549	0,01578	0,02142	0,01836
x_5	0,108	1,289	1,188	1,125	1,325	1,238	0,13920	0,12825	0,12150	0,14310	0,13365
x_6	0,094	0,267	0,213	0,213	0,238	0,275	0,02507	0,01998	0,01998	0,02233	0,02585
x_7	0,103	4,833	4,938	4,438	2,263	2,738	0,49783	0,50856	0,45706	0,23304	0,28196
x_8	0,109	1,556	1,550	1,588	0,925	1,038	0,16956	0,16895	0,17304	0,10083	0,11309
x_9	0,111	1,111	0,863	0,975	1,338	1,000	0,12333	0,09574	0,10823	0,14846	0,11100
x_{10}	0,094	1,244	1,225	1,200	1,000	1,075	0,11698	0,11515	0,11280	0,09400	0,10105
						K_i	1,14230	1,11093	1,04873	0,77880	0,80647

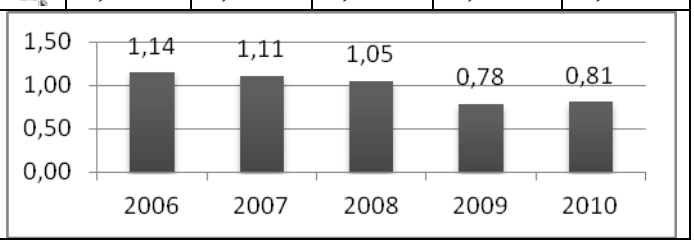

Table 5. Value of K_i on branches

Branches / Year	2006	2007	2008	2009	2010
Agriculture, forestry and fishing	0,85486	1,22635	0,85236	1,17057	1,11713
Mining and quarrying	0,90399	0,86659	0,97237	0,80763	0,81653
Manufacturing	0,98052	1,25807	0,84360	0,59968	0,79707
Electricity, gas, steam and air conditioning supply	0,77623	0,86372	0,57400	0,91843	0,88842
Water supply; sewerage, waste management	0,88830	0,94474	0,56411	0,90633	0,89850
Construction	1,14230	1,11093	1,04873	0,77880	0,80647
Wholesale and retail trade	1,07853	1,19222	1,21960	1,13640	1,00197
Transportation and storage	0,91314	0,92719	0,57655	0,56329	0,87063
Accommodation and food service activities	0,63933	0,65422	0,46603	0,46021	0,45944
Information and communication	0,85624	0,86968	0,88690	0,70148	0,92716
Real estate activities	0,58625	0,46736	0,43811	0,41049	0,51922
Professional, scientific and technical activities	0,86528	0,77158	1,11760	0,97414	1,03826
Administrative and support service activities	0,84687	0,83118	0,82795	0,79602	0,83915
Education	0,99114	1,00311	1,12103	0,98140	0,94599
Human health and social work activities	1,13796	0,95160	0,46303	0,86685	0,81089
Arts, entertainment and recreation	0,46486	0,92931	0,68570	0,26061	0,42867
Other service activities	1,09047	1,05482	0,93003	0,70349	0,75781

K_i indices were calculated for remained 16 branches of Lithuania in the same manner over the 2006 to 2010 period. Table 5 specifies the results.

According to table data, we can note that the value of K_i reduced in 2008 (the year of World financial crisis) almost on all branches being analyzed. Besides it, the branch Wholesale and retail trade is the branch with the biggest K_i value throughout all years, which testifies high efficiency of the branch operation. The lowest K_i value belongs to the Real estate activities branch, which in its turn shows that the branch is not developed in the economy of Lithuania.

By using the K_i values mentioned above, we can compose a table of enterprise bankruptcy probability risk specified in Table 6.

Table 6. Analysis of the crisis situation in the enterprise with the help of K_i value

K_i values	Linguistic bankruptcy variable	Probability of bankruptcy, %
0.6 and less	Very high	80-100
from 0.61 to 0.7	High	35-50
from 0.8 to 0.9	Probable	15-20
1.0 and more	Very low	0

4.3. Dependence between the quantity of bankrupt enterprises and value of K_i index

There was formed a table of Dependence between the quantity of bankrupt enterprises and value of K_i index to characterize accurateness of the SAW method (Table 7). In the table the column "№" specifies the change in quantity of enterprises subjected to initiation of bankruptcy, where "+" means increase, and "-" means decrease of enterprises in number. In the column "K_i" there is specified change in values of K_i index on branches, where "+" mean reduction, and "-" means increase of K_i index. It means that dependence between the quantity of bankrupt enterprises and value of K_i index must be reverse.

Under the table, we can see that the relation between basic data is close and deviation amounts only to 10 %. For comparison there was considered dependence between the quantity of enterprises that instituted of bankruptcy proceedings and value of Z-score of E. Altman (data of the Department of Statistics of Lithuania) demonstrated in Table 8. Consequently, it was found out that the dependence is lower to 28 % as compared to the dependence with the value of K_i index.

In this table dependence between the quantity of bankrupt enterprises and value of E. Altman Z-score are completely consistent only at three branches and these results are less satisfactory than those obtained using the SAW method. This way we can make a conclusion that analysis of business crisis with the help of SAW method is more accurate.

Table 7. Dependence between the quantity of bankrupt enterprises and value of K_i index

Branches / Year	2006 - 2007		2007 - 2008		2008 - 2009		2009 - 2010	
	1	2	1	2	1	2	1	2
Agriculture, forestry and fishing	-	-	+	+	-	-	-	+
Mining and quarrying	+	+	-	-	+	+	-	-
Manufacturing	-	-	+	+	+	+	-	-
Electricity, gas, steam and air conditioning supply	-	-	+	+	+	-	+	+
Water supply; sewerage, waste management	-	-	+	+	-	-	+	+
Construction	+	+	+	+	+	+	-	-
Wholesale and retail trade	-	-	+	-	+	+	+	+
Transportation and storage	-	-	+	+	+	+	-	-
Accommodation and food service activities	-	-	+	+	+	+	+	+
Information and communication	-	-	-	-	+	+	-	-
Real estate activities	+	+	+	+	+	+	+	-
Professional, scientific and technical activities	+	+	+	-	+	+	-	-
Administrative and support service activities	+	+	+	+	+	+	+	-
Education	-	-	-	-	+	+	+	+
Human health and social work activities	+	+	+	+	-	-	+	+
Arts, entertainment and recreation	+	-	+	+	+	+	-	-
Other service activities	+	+	+	+	+	+	-	-

Table 8. Dependence between the quantity of bankrupt enterprises and value of E. Altman Z-score

Branches / Year	2006 - 2007		2007 - 2008		2008 - 2009		2009 - 2010	
	№	Z	№	Z	№	Z	№	Z
Agriculture, forestry and fishing	-	-	+	+	-	-	-	-
Mining and quarrying	+	-	-	+	+	+	-	-
Manufacturing	-	+	+	+	+	+	-	-
Electricity, gas, steam and air conditioning supply	-	+	+	+	+	-	+	+
Water supply; sewerage, waste management	-	+	+	+	-	+	+	-
Construction	+	+	+	+	+	+	-	-
Wholesale and retail trade	-	-	+	-	+	+	+	-
Transportation and storage	-	+	+	+	+	+	-	+
Accommodation and food service activities	-	+	+	+	+	+	+	+
Information and communication	-	+	-	-	+	+	-	-
Real estate activities	+	+	+	+	+	-	+	+
Professional, scientific and technical activities	+	-	+	-	+	+	-	-
Administrative and support service activities	+	-	+	+	+	+	+	-
Education	-	+	-	+	+	+	+	-
Human health and social work activities	+	+	+	+	-	-	+	+
Arts, entertainment and recreation	+	-	+	+	+	+	-	-
Other service activities	+	-	+	-	+	+	-	-

5. Conclusions

Modern state of the majority of economic entities is such that their top-priority tactical objective is responsive form of management and prevention of bankruptcy. Similar approach prevents the enterprise from achieving stable operation in long-term future. Therefore, formation of effective enterprises management mechanism based on the financial and economic standing analysis is gaining special importance in modern day conditions in view of setting of strategic activities' goals meeting market conditions

and searching of ways to achieve them. Consequently, enterprise managers are focused on the search of ways to prevent business failure. Analysis of the crisis situation shall enable to avoid a business failure and develop further operation strategy.

At this date, scientists have considered various methods of analyzing of the crisis situation in the enterprise. The topic is becoming more virtual due to latest events that took place in world economy. The present article proposes to use one of the MADM methods to analysis of the crisis situation in the enterprise, which is called as Simple Additive Weighting (SAW) method. Through the method there was created and presented multicriterion model of analyzing of the crisis situation in the enterprise by the example of economy branches of Lithuania.

Because of the analysis, there were drawn conclusions specifying the below specified advantages of the method:

- There are used such indices in the method, which are mainly influence of the enterprise's crisis.
- It enables to assess probability of bankruptcy with adequate accuracy.
- It may consider both quantitative and qualitative indices of the enterprise's activities efficiency.
- It is easy to use, which enables to minimize time and cash expenses.
- It might be used to any enterprise carrying out its activity in any branch, that is, it is universal.

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