Improving of rating assessment of the financial condition of companies

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Abstract. In the article, based on the generalized conditional reference balance, a rating methodology was developed that assesses the quality of the accounting balance of companies. Based on the quality of the accounting balance of companies, 4 quality gradations were established to divide them into groups. Also, in order to know the position of the companies in the top power, the financial size of the companies, which is a new economic term, was introduced and its calculation methodology was given. Based on the financial size of the companies, the financial size was divided into 9 steps to determine their overall comparative value. In order to determine the position of the companies included in each level in the financial top strength, a methodology for determining the financial rating within the ranking level was developed. Keywords: companies, base point, generalized conditional reference balance, reference amounts of relative coefficients, quality assessment of the accounting balance, quality gradation, ranking step, financial rating within the ranking step.

1 Introduction

The prior goal of companies is to strengthen their financial stability in a competitive market environment, as well as to be able to compete with their rivals and to develop a positive brand. If a company achieves this goal, its balance sheet assessment (rating) and its financial strength will improve. In addition, the indicators of the balance sheet, which include the results of the actions of each company in the pursuit of such a goal, are formulated in a certain order which is relative to each other. Financial analysts point out that in order for the balance sheet to be absolutely liquid, such correlations as PE (private equity) > BC (borrowed capital) or PE (private capital) > LTA (long-term assets) must be met. In this regard if such conditions are satisfied for a company, it is possible to make a conclusion that financial condition of this company will be stable, the rating assessment will be good, the market price will be high. If we rely on the phrase “money brings money”, it will be very difficult for companies to work on the condition of PE >BC. Or if the PE > LTA condition is met for the company’s balance sheet to be absolutely liquid, then the balancing condition CA (current asset) > BC (borrowed capital) must be appropriate as well. Thus it can be concluded that the smaller the company’s BC (borrowed capital) and LTA (long-term assets), the better the overall performance of the company. However, we see that the majority of American companies (Apple, Microsoft,

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Wallmart, ExxonMobil, Verizon and other companies) operating without the above conditions have high global ratings and high market prices.

We render the above situation as follows: as a company operates in a competitive market environment, playing a strategic game with its competitors, it will need potential investors and contract business partners. This means that a company will have to generate BC (borrowed capital) accurately in relation to other indicators of the balance sheet. Herewith, in order to raise the liquidity of its cash flow, a company will have to invest the residual funds in long-term investments, expand its activities and to develop modern know-how in future together with long-term assets in relation to other indicators of the accounting balance sheet. As a result of such efforts, a company will improve its balance sheet quality (rating) and expand its financial amount.

As companies have the aim to expand their financial amount gradually from year to year, and with this amount they are willing to find out among which companies they are and to know their financial position among these companies.

2 Literature review

The problems related to the research topic, as well as its urgency have been studied in the research papers of such scholars as Birman G., Schmidt S., Van Horn D.K., Bernstein L.A., Stone D, Hatching K., Bocharov V.V., Alekseev P.D., Balabanov I.T., Kolass B., Sheremet A.D., S.I. Krilov, Bank V.R., Kostirko R.O., Shokhazamiy Sh.Sh., Alimov B.B. and others [1-27]. In their research papers they have analyzed current methods and technique of determining rating assessment of financial condition of companies. Moreover, they have expressed their views on the rating assessment. Herewith, foreign scholars have used classical methods in financial analysis. For example, Kostirko R.O has noted that the lack of a single standard method for determining the rating of companies makes it very complicated to determine the rating assessment of companies.

Sheremet A.D. emphasizes that one of the companies, which differs from various other industries and possesses efficient performance can be studied as a reference standard. This does not impose any restrictions on the use of the evaluation method because the financial performance of different business entities is studied in terms of comparison.

3 Data and methodology

At the same time, scientific studies on comprehensive analysis and rating assessment of companies' financial situation are being carried out in global practice. However, the issues of comparative assessment of quality levels based on the methodology of rating and ranking by means of coefficients in correct and inverse proportions based on the summary indicators of the accounting balance, which represent the financial status of economic entities in a complex manner, have not been effectively solved on the basis of specific mathematical methods and criteria. In this context, due to the increasing digitization of the activities of national and international rating evaluation systems, the theoretical and methodological basis related to these issues is not sufficiently developed, the urgency and necessity of achieving their effective solution is emerging.

4 A proposed mathematical approach

The methodological approach based on the rules given above includes a set of methods (methodologies) given below:

The first method: 6 are correct $(\frac{LTA}{OC}, \frac{LTA}{CA}, \frac{L}{CA}, \frac{LTA}{L}, \frac{L}{OC}, \frac{OC}{CA})$ and 6 reversed $(\frac{OC}{LTA}, \frac{CA}{LTA}, \frac{CA}{L}, \frac{L}{LTA}, \frac{OC}{L}, \frac{CA}{OC})$ determining the minimum and maximum limit values of a total of 12 relative coefficients;

The second method: Determination of the optimal limit for the minimum and maximum limit values of 6 positive and 6 inverse ratio coefficients;

The third method: Determination of reference quantities lying within the interval of minimum and maximum limit values of 12 relative coefficients;

The fourth method: Determination of ratings of companies according to 4 financial quality conditions using a generalized criterion (its modular form);

The fifth method: Based on the company's normalized financial size and rating on a logarithmic scale, its ranking position in financial top–strength was determined.

We reveal the content of the methodological approach in the sequence of the methods included in it.

The first method: One of the main goals of company owners is to increase the mobility of balance sheet items. During this movement, the value of a total of 12 relative coefficients changes in a certain interval by means of the coefficients of the balance sheet items of the company with a stable financial position. If one of these relative coefficients does not change in a certain interval, this will affect the other relative coefficients. As a result, it leads to a violation of the balance sheet items.

In order to determine the balance sheet quality assessment (rating) of a company, with the aim of simplifying to apply the 12 coefficients, we define them accordingly as follows:

$$\frac{LTA}{CA} = x_1,\ \frac{CA}{LTA} = x_2,\ \frac{PE}{TL} = x_3,\ \frac{TL}{PE} = x_4,\ \frac{LTA}{PE} = x_5,\ \frac{PE}{LTA} = x_6,$$
$$\frac{CA}{TL} = x_7,\ \frac{TL}{CA} = x_8,\ \frac{LTA}{TL} = x_9,\ \frac{TL}{LTA} = x_{10},\ \frac{CA}{PE} = x_{11},\ \frac{PE}{CA} = x_{12}$$

(here LTA – long–term assets, CA – current assets, PE – private equity, TL – total liabilities).

The values of the defined minimum and maximum limits of these coefficients were as follows:

$0{,}1 \le x_1 \le 1,\ 1 \le x_2 \le 10,\ 1 \le x_3 \le 4,\ 0{,}25 \le x_4 \le 1,\ 0{,}5 \le x_5 \le 0{,}8,\ 1{,}25 \le x_6 \le 2,\ 1 \le x_7 \le 2,\ 0{,}5 \le x_8 \le 1,\ 0{,}1 \le x_9 \le 2,\ 0{,}5 \le x_{10} \le 10,\ 0{,}5 \le x_{11} \le 8,\ 0{,}13 \le x_{12} \le 2.$

The second method (determining the optimal dividing limit for the minimum and maximum limit values of 6 correct and 6 reverce relative coefficients).

Using the defined limits of the six correct $(\frac{LTA}{OC}, \frac{LTA}{CA}, \frac{L}{CA}, \frac{LTA}{L}, \frac{L}{OC}, \frac{OC}{CA})$ and 6 reversed $(\frac{OC}{LTA}, \frac{CA}{LTA}, \frac{CA}{L}, \frac{L}{LTA}, \frac{OC}{L}, \frac{CA}{OC})$ coefficients presented in the first methodology, the optimal minimum and maximum amount for them is determined as follows:

– using the minimum and maximum amounts determined for these correct proportions, their optimal minimum and maximum amounts are determined as follows:

$$\frac{LTA}{OC} \cap \frac{LTA}{CA} \cap \frac{L}{CA} \cap \frac{LTA}{L} \cap \frac{L}{OC} \cap \frac{OC}{CA}$$
$$= [0{,}5; 0{,}8] \cap [0{,}1; 1] \cap [0{,}5; 1] \cap [0{,}1; 2] \cap [0{,}25; 1] \cap [0{,}125; 2]$$
$$= [0{,}5; 0{,}8]$$

– using the minimum and maximum amounts determined for these inverse ratios, their optimal minimum and maximum amounts are determined as follows:

$$\frac{CA}{LTA} \cap \frac{OC}{L} \cap \frac{OC}{LTA} \cap \frac{CA}{L} \cap \frac{L}{LTA} \cap \frac{CA}{OC} = [1; 10] \cap [1; 4] \cap [1{,}25; 2] \cap [1; 2] \cap [0{,}5; 10] \cap [0{,}5; 8] = [1{,}25; 2]$$

The third method (determining standard quantities lying within the interval of minimum and maximum limit values of 12 relative coefficients).

The generalized conditional reference balance was as follows:

Generalized conditional reference balance

LTA (a) =57y	PE (c) = 92y
CA (b) = 97y	TL (d) =62y

The quantities of the $x_э$ standard determined on this conditional reference balance are as follows:

$x_{э(1)}$ =0,59 , $x_{э(2)}$ =1,7 , $x_{э(3)}$ =1,5, $x_{э(4)}$ =0,67, $x_{э(5)}$ =0,62, $x_{э(6)}$ =1,61,
$x_{э(7)}$ =1,56, $x_{э(8)}$ =0,64, $x_{э(9)}$ =0,92, $x_{э(10)}$ =1,09, $x_{э(11)}$ =1,05, $x_{э(12)}$ =0,95

The fourth method: Determination of ratings of companies according to 4 financial quality conditions using a generalized criterion (its modular form);

Using the reference values and the minimum and maximum limits of all 12 coefficients determined above, the summarized criterion adopted in the following form is considered to be relevant:

$$F=\sum_{i=1}^{12}\left|x_{э(i)}-x_i\right|$$

Using the proposed summarized criterion, it is possible to assess the rating of any company, which reflects the quality of the financial position of any organizational and legal form and type of business. For said purpose, in order to divide the amount of the criterion F into qualitative gradations, using the standard values and minimum and maximum limits of all 12 coefficients determined above, we calculate its minimum (*minF*) and maximum (*maxF*) values as follows:

$$minF = |0{,}59-1|+|1{,}7-1|+|1{,}5-1|+|0{,}67-1|+|0{,}62-0{,}5|+|1{,}61-1{,}25| + |1{,}56-2|+|0{,}64-0{,}5|+|0{,}92-0{,}1|+|1{,}09-0{,}5| + |1{,}05-0{,}5|+|0{,}95-0{,}13| = 5{,}04$$

$$maxF = |0{,}59-0{,}1|+|1{,}7-10|+|1{,}5-4|+|0{,}67-0{,}25|+|0{,}62-0{,}8|+|1{,}61-2|+|1{,}56-1|+|0{,}64-1|+|0{,}92-2|+|1{,}09-10|+|1{,}05-8|+|0{,}95-2| = 31{,}19$$

We divide the range of the calculated *minF* and *maxF* values into four qualitative gradations as described above, i.e.:

(0; 5,04] – excellent quality;
(5,04; 15,595] – good quality;
(15,595; 31,19] – satisfactory quality;
(31,19; ∞) – poor quality.

The fifth method: Based on the company's normalized financial size and rating on a logarithmic scale, its ranking position in financial top–strength was determined.

Thus, the quality of the financial position of a company is assessed by a rating using the summarized criterion F. This rating is determined in four gradation intervals.

In the schematic model of the above company's balance sheet indicators, which depends on the same unknown, it serves as a necessary indicator in determining the financial amount of the company. In this case financial amount will be equal to $k=\log_{10} y$.

In a competitive market environment, it is much more complicated for companies to operate according to the above schematic model. In such circumstances, the financial amount of the balance sheet items varies. That is, the above model shall look like this.

Generalized conditional reference balance

LTA (a) =57y_1	PE (c) = 92y_3
CA (b) = 97y_2	TL (d) =62y_4

According to the above schematic model, the financial amount of a company is determined as follows.

$$\kappa = \log_{10}\frac{y_1+y_2+y_3+y_4}{4}$$

In reliance upon the financial amount of companies, we divide the financial amount into several levels to determine their comparable total cost. These levels are as follows:

Level 1 is called "A". This level includes all companies with a financial amount more than 8 (i.e. k> 8);

Level 2 is called "B". This level includes all companies with a financial amount more than 7 and less than 8 (i.e. $7 < k \leq 8$);

Level 3 is called "C". This level includes all companies with a financial amount more than 6 and less than 7 (i.e. $6 < k \leq 7$);

Level 4 is called "D". This level includes all companies with a financial amount more than 5 and less than 6 (i.e. $5 < k \leq 6$);

Level 5 is called "E". This level includes all companies with a financial amount more than 4 and less than 5 (i.e. $4 < k \leq 5$);

Level 6 is called "F". This level includes all companies with a financial amount more than 3 and less than 4 (i.e. $3 < k \leq 4$);

Level 7 is called "G". This level includes all companies with a financial amount more than 2 and less than 3 (i.e. $2 < k \leq 3$);

Level 8 is called "H". This level includes all companies with a financial amount more than 1 and less than 2 (i.e. $1 < k \leq 2$);

Level 9 is called "I". This level includes all companies with a financial amount more than 0 and less than 1 (i.e. $0 < k \leq 1$).

Creating a ranking for companies by dividing them into intermediate gradations of one unit length makes it easier for us to draw conclusions for these companies. However, since there are unlimited numbers in a single unit range, it is very unlikely that the financial amount of two or more companies will be equal to the same number. We use an overall estimate to determine robust position of companies that belong to each of these levels. This assessment is determined as follows:

$$n = \frac{the\ normalized\ financial\ size\ of\ the\ company}{the\ company's\ financial\ rating}$$

The higher this overall assessment, the more stable the company's financial position, as well as the higher its position in the top–strength.

Financial statements of each company, which role in financial strength is comparable, should be brought to the same financial amount (thousand, million or billion UZS or in the currency, such as the USD or the Euro).

Practical application of the results, specified above, can be seen in the example of companies in the F, G and H levels of the United States.

5 Results and discussion

Practical application of the results, specified above, can be seen in the example of companies in the F, G and H levels of the United States.

The table(1) shows, that "Alphabet" company referred to level "F" (i.e. $3 < k \leq 4$) is the highest-ranked in the financial top-strength of companies of the USA in terms of financial amount. "Microsoft" is ranked the second. "Apple", "Walmart", "UnitedHealth Group", "ExxonMobil", "Chevron" and "Verizon" are ranked the third, fourth, fifth, sixth, seventh and eighth respectively.

Table 1. Determining financial top-strength rating of American companies related to "F" level (i.e. $3 < k \leq 4$) in terms of financial amount (https://www.macrotrends.net/.)

Coefficients	Reference quantities	Apple		Alphabet		Exxonmobil		Microsoft		Verizon		Chevron		UnitedHealth Group		Walmart	
		2018 year	Absolute difference	2018 year	Absolute difference	2018 year	Absolute difference	2018 year	Absolute difference	2018 year	Absolute difference	2018 year	Absolute difference	2018 year	Absolute difference	2018 year	Absolute difference
LTA/C	0,59	1,78	1,19	0,72	0,13	6,22	5,63	0,53	0,06	6,65	6,06	6,46	5,87	2,93	2,34	2,54	1,95
CA/LTA	1,7	0,56	1,14	1,40	0,30	0,16	1,54	1,90	0,20	0,15	1,55	0,15	1,55	0,34	1,36	0,39	1,31
LTA/PE	0,62	2,19	1,57	0,55	0,07	1,50	0,88	1,08	0,46	4,21	3,59	1,41	0,79	2,09	1,47	1,98	1,36
PE/LTA	1,61	0,46	1,15	1,83	0,22	0,67	0,94	0,93	0,68	0,24	1,37	0,71	0,90	0,48	1,13	0,51	1,10
LTA/TL	0,92	0,91	0,01	1,76	0,84	2,02	1,10	0,51	0,41	1,10	0,18	2,24	1,32	1,16	0,24	1,13	0,21
TL/LTA	1,09	1,10	0,01	0,57	0,52	0,50	0,59	1,97	0,88	0,91	0,18	0,45	0,64	0,86	0,23	0,89	0,20
CA/PE	1,05	1,23	0,18	0,76	0,29	0,24	0,81	2,05	1,00	0,63	0,42	0,22	0,83	0,71	0,34	0,78	0,27
PE/CA	0,95	0,82	0,13	1,31	0,36	4,14	3,19	0,49	0,46	1,58	0,63	4,57	3,62	1,40	0,45	1,29	0,34
CA/TL	1,56	0,51	1,05	2,46	0,90	0,32	1,24	0,96	0,60	0,16	1,40	0,35	1,21	0,40	1,16	0,44	1,12
TL/CA	0,64	1,97	1,33	0,41	0,23	3,08	2,44	1,04	0,40	6,07	5,43	2,89	2,25	2,53	1,89	2,26	1,62
PE/TL	1,5	0,41	1,09	3,22	1,72	1,34	0,16	0,47	1,03	0,26	1,24	1,58	0,08	0,55	0,95	0,57	0,93
TL/PE	0,67	2,41	1,74	0,31	0,36	0,74	0,07	2,13	1,46	3,84	3,17	0,63	0,04	1,80	1,13	1,75	1,08
Rating assessment			10,60		5,94		18,59		7,65		25,20		19,11		12,70		11,49
Financial amount		3,43		3,17		3,41		3,25		3,32		3,27		3,06		3,21	
Overall assessment		0,32		0,53		0,18		0,42		0,13		0,17		0,24		0,28	
Ranking in terms of financial top-strength		3		1		6		2		8		7		5		4	

Table 2. Determining financial top-strength rating of American companies related to "G" level (i.e.$2 < k \leq 3$) in terms of financial amount (https://www.macrotrends.net/.)

Coefficients	Reference quantities	Occidental Petroleum		Intel		Tesla		Pepsi		Coca - cola		AmerisourceBergen		United Airlines Holdings Inc		International Paper	
		2018	Absolute difference	2018 year	Absolute difference	2018 year	Absolute difference	2018 year	Absolute difference	2018 year	Absolute difference	2018 year	Absolute difference	2018 year	Absolute difference	2018 year	Absolute difference
LTA/CA	0,59	3,42	2,83	3,45	2,86	2,58	1,99	2,55	1,96	2,34	1,75	0,45	0,14	5,91	5,32	3,10	2,51
CA/LTA	1,7	0,29	1,41	0,29	1,41	0,39	1,31	0,39	1,31	0,43	1,27	2,20	0,50	0,17	1,53	0,32	1,38
LTA/PE	0,62	1,59	0,97	1,33	0,71	3,72	3,10	3,82	3,20	3,06	2,44	3,86	3,24	4,18	3,56	3,92	3,30
PE/LTA	1,61	0,63	0,98	0,75	0,86	0,27	1,34	0,26	1,35	0,33	1,28	0,26	1,35	0,24	1,37	0,26	1,35
LTA/TL	0,92	1,51	0,59	1,86	0,94	0,89	0,03	0,88	0,04	0,91	0,01	0,34	0,58	1,08	0,16	0,94	0,02
TL/LTA	1,09	0,66	0,43	0,54	0,55	1,12	0,03	1,13	0,04	1,10	0,01	2,94	1,85	0,93	0,16	1,07	0,02
CA/PE	1,05	0,47	0,58	0,39	0,66	1,44	0,39	1,50	0,45	1,31	0,26	8,49	7,44	0,71	0,34	1,27	0,22
PE/CA	0,95	2,15	1,20	2,59	1,64	0,69	0,26	0,67	0,28	0,76	0,19	0,12	0,83	1,42	0,47	0,79	0,16
CA/TL	1,56	0,44	1,12	0,54	1,02	0,35	1,21	0,35	1,21	0,39	1,17	0,75	0,81	0,18	1,38	0,30	1,26
TL/CA	0,64	2,27	1,63	1,86	1,22	2,89	2,25	2,88	2,24	2,57	1,93	1,34	0,70	5,50	4,86	3,31	2,67
PE/TL	1,5	0,95	0,55	1,40	0,10	0,24	1,26	0,23	1,27	0,30	1,20	0,09	1,41	0,26	1,24	0,24	1,26
TL/PE	0,67	1,06	0,39	0,72	0,05	4,17	3,50	4,32	3,65	3,37	2,70	11,35	10,68	3,88	3,21	4,18	3,51

Rating assessment	12,66	12,01	16,67	16,99	14,21	29,54	23,59	17,65
Financial amount	2,51	2,97	2,36	2,77	2,80	2,43	2,59	2,42
Overall assessment	0,20	0,25	0,14	0,16	0,20	0,08	0,11	0,14
Ranking in terms of financial top-strength	3	1	6	4	2	8	7	5

It is obvious from the table(2), that "Intel" company referred to level "G" level (i.e.$2 < k \leq 3$) is the highest-ranked in the financial top-strength of American companies in terms of financial amount. "Coca-cola" company is ranked the second. "Occidental Petroleum", "Pepsi", "International Paper", "Tesla", "United Airlines Holdings Inc" and "AmerisourceBergen" are ranked the third, fourth, fifth, sixth, seventh and eighth respectively.

Table 3. Determining financial top-strength rating of American companies related to "H" level (i.e. $1 < k \leq 2$) in terms of financial amount (https://www.macrotrends.net/.)

Coefficients	**Reference quantities**	**JetBlue**		**Huntsman corporation**		**Thor Industries**		**Motorola Solutions**		**Spirit Aerosystems**		**Regeneron Pharmaceuticals**		**SpartanNash**		**Dana**	
		2018 year	**Absolute difference**	**2018 year**	**Absolute difference**	**2018 year**	**Absolute difference**	**2018 year**	**Absolute difference**	**2018 year**	**Absolute difference**	**2018 year**	**Absolute difference**	**2018 year**	**Absolute difference**	**2018 year**	**Absolute difference**
LTA/CA	0,59	6,90	6,31	1,69	1,10	1,12	0,53	1,20	0,61	1,00	0,41	0,82	0,23	0,97	0,38	1,04	0,45
CA/LTA	1,7	0,15	1,55	0,59	1,11	0,89	0,81	0,83	0,87	1,00	0,70	1,22	0,48	1,03	0,67	0,97	0,73
LTA/PE	0,62	2,04	1,42	1,82	1,20	0,76	0,14	-4,03	4,65	2,29	1,67	0,60	0,02	1,36	0,74	2,09	1,47
PE/LTA	1,61	0,49	1,12	0,55	1,06	1,32	0,29	-0,25	1,86	0,44	1,17	1,66	0,05	0,74	0,87	0,48	1,13
LTA/TL	0,92	1,53	0,61	0,96	0,04	1,74	0,82	0,48	0,44	0,64	0,28	1,78	0,86	0,77	0,15	0,67	0,25
TL/LTA	1,09	0,66	0,43	1,04	0,05	0,57	0,52	2,08	0,99	1,57	0,48	0,56	0,53	1,29	0,20	1,49	0,40
CA/PE	1,05	0,30	0,75	1,08	0,03	0,68	0,37	-3,35	4,40	2,30	1,25	0,74	0,31	1,40	0,35	2,02	0,97

PE/CA	0,95	3,38	2,43	0,93	0,02	1,48	0,53	-0,30	1,25	0,43	0,52	1,36	0,41	0,72	0,23	0,50	0,45
CA/TL	1,56	0,22	1,34	0,57	0,99	1,56	0,00	0,40	1,16	0,64	0,92	2,17	0,61	0,80	0,76	0,65	0,91
TL/CA	0,64	4,52	3,88	1,76	1,12	0,64	0,00	2,50	1,86	1,56	0,92	0,46	0,18	1,25	0,61	1,54	0,90
PE/TL	1,5	0,75	0,75	0,53	0,97	2,30	0,80	-0,12	1,62	0,28	1,22	2,94	1,44	0,57	0,93	0,32	1,18
TL/PE	0,67	1,34	0,67	1,89	1,22	0,43	0,24	-8,37	9,04	3,59	2,92	0,34	0,33	1,75	1,08	3,10	2,43
Rating assessment			21,26		8,90		5,04		28,75		12,46		5,43		6,98		11,27
Financial amount	1,92		1,76		1,27		1,86		1,61		1,88		1,14		1,63		
Overall assessment	0,09		0,20		0,25		0,06		0,13		0,35		0,16		0,14		
Ranking in terms of financial top-strength	7		3		2		8		6		1		4		5		

It is obvious from the table(3), that “Regeneron Pharmaceuticals” company referred to level “H” level (i.e. $1 < k \leq 2$) is the highest-ranked in the financial top-strength of American companies in terms of financial amount. “Thor Industries” company is ranked the second. “Huntsman corporation”, “SpartanNash”, “Dana”, “Spirit Aerosystems”, “JetBlue”, “Motorola Solutions” are ranked the third, fourth, fifth, sixth, seventh and eighth respectively

6 Conclusion

The mathematical approach to the comprehensive analysis of the financial situation of the companies and the comparative comparative assessment and ranking of the companies, based on the comprehensive analysis of the financial situation of foreign countries, the empirical analytical–test results of the comparative comparative assessment of the financial situation and the ranking of the countries (that is, the comparative comparative rating assessment based on the comprehensive mathematical analysis of the financial situation of the countries and the mathematical approach of determining the ranking and the principles and methodology of its application were developed, and the scientific validity of this mathematical approach was empirically confirmed based on the results of a comprehensive analysis of the financial situation, financial rating and ranking of prestigious companies in foreign countries). The methodological importance of this result is that the proposed mathematical approach, the principles and methodology of its application enriched and improved the existing theoretical–methodological basis of complex financial analysis of company. In this approach, based on the rules of its scientific–methodological base, within the scope of scientific research, it is possible to form relevant scientific conclusions, develop theoretical proposals and practical

recommendations. The practical significance of companies in their strategic development plans is mainly two goals: to increase the value and financial size steadily; ensuring the quality of the accounting balance. If these two goals are met, the overall financial rating of the company will also increase. In this case, as a rule, it is important that the financial size of the companies whose financial condition is stabilizing and improving from year to year should be higher than the inflation level and the general financial rating has been confirmed to increase from year to year. Practical effect–the established rule is that companies should serve as a program in the development of strategic development plans, and the annual growth rate of the financial size should be higher than the current inflation rate.

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