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IMPROVEMENT OF THE PROCEDURE FOR INTEGRAL ASSESSMENT OF THE FINANCIAL AND CORPORATE STATE OF SHARE-BASED SOCIETIES

Об'єктом дослідження є визначення рівня фінансово-корпоративного стану акціонерних товариств. Одним з найбільш проблемних місць є виявлення рівня наявних можливостей або невиявлених резервів стану акціонерних товариств для визначення впливу на їх вартість. Для формування системи показників-індикаторів оцінки фінансово-корпоративного стану акціонерних товариств використано метод контент-аналізу. Вибір найбільш впливових показників-індикаторів на фінансово-корпоративний стан акціонерних товариств здійснено за допомогою методу множинної регресії. Оцінку фінансово-корпоративного стану акціонерних товариств запропоновано здійснювати в розрізі трьох компонент: майнового, фінансового та корпоративного стану з використанням бального підходу до визначення інтегрального показника. Ключовим моментом оцінки фінансово-корпоративного стану акціонерних товариств є розробка бальної шкали оцінювання та критеріїв відповідності (оптимальності). З метою отримання порівняльних даних використовувалась процедура стандартизації бальних оцінок. В ході дослідження застосовано методи балів, інтегральної оцінки та множинної регресії. Апробація запропонованої процедури оцінки фінансово-корпоративного стану проведена для восьми акціонерних товариств Харківського регіону (Україна) з визначенням стану спочатку за кожною компонентою, а надалі його загальне інтегральне значення. Отримано класифікаційні рівні фінансово-корпоративного стану акціонерних товариств. Це пов'язано з тим, що запропонована процедури оцінки фінансово-корпоративного стану має ряд особливостей, зокрема: визначення найбільш вагомих показників-індикаторів оцінки та інтегрального рівня як майнового, фінансового, так і корпоративного стану акціонерних товариств. Завдяки цьому забезпечується можливість визначення рівня фінансово-корпоративного стану акціонерних товариств від низького до високого через встановлення відповідних критеріїв. У порівнянні з аналогічними відомими методами оцінки стану товариств, це сприятиме точному, об'єктивному та неупередженому виявленню стратегічних можливостей та резервів для зростання та прирощування вартості акціонерних товариств. Матеріали проведеного дослідження доводять, що без належного обґрунтування показників-індикаторів оцінки фінансово-корпоративного стану акціонерних товариств неможливо його достовірне оцінювання.

Ключові слова: фінансово-корпоративний стан, акціонерне товариство, інтегральна оцінка, фінансові коефіцієнти, система показників оцінки.

1. Introduction

Economic science contains a wide range of methodological recommendations that are proposed by leading specialists and provide a reasonable choice of the direction of actions for assessing the financial and property status, reserves and efficiency of enterprises. However, scientists ignore the specificity of the activities of joint-stock companies, which is primarily determined by the level of corporate governance, the sensitivity of shares to market changes, their value for shareholders, etc. Therefore, it is relevant to study the procedure for assessing the financial and corporate state through a system of indicators of its assessment.

2. The object of research and its technological audit

The object of research is determination of the level of the financial and corporate state of joint-stock companies.

One of the most problematic areas is the identification of the level of available opportunities or identified

reserves of the state of joint-stock companies to determine the impact on their value.

3. The aim and objectives of research

The aim of research is development of an integrated assessment procedure for the financial and corporate state and justification of the selection of a system of indicators for its evaluation. The objectives of the work are:

1. Systematization of indicators of the assessment of the financial and corporate state of joint-stock companies.
2. Analysis of existing methods of assessment and determination of the most appropriate.
3. Determination of the sequence of evaluation of the financial and corporate state of joint-stock companies.
4. Implementation of the results of its evaluation.

4. Research of existing solutions of the problem

Studies evaluating the financial and property status and the level of corporate governance are engaged [1–5].

Thus, in [2] rating and expert estimates are used to evaluate corporate governance, and in [3] it is proposed to use the theory of fuzzy sets to estimate the probability of bankruptcy.

The authors of works [6, 7] apply models of cognitive diagnostics of the probability of bankruptcy to an integrated assessment of the financial condition of enterprises. The use of the ballistic approach to the assessment of the financial state was proposed in [5]. In [8–10], the integral indicator of the evaluation of the social and economic efficiency of corporate governance is calculated using correlation-regression analysis.

However, the issues of assessing the corporate condition of joint-stock companies are sufficiently investigated, it is a characteristic feature of the activities of joint-stock companies. That is why the issues of developing procedures for assessing the financial and corporate state in their interconnection and interdependence need to be improved.

5. Methods of research

To solve the problems, the following methods are used: analysis and synthesis, content analysis, multiple regression, scoring of the integral indicator.

6. Research results

To assess the financial and corporate condition of joint-stock companies (hereinafter referred to as FCCJSC), it is necessary to choose such a system of indicators that takes into account the following requirements:

- the essence of the indicators and their groups for the evaluation of the FCCJSC;
- comparability of indicator indicators included in the proposed procedure;
- the ability to predict (estimate) the FCCJSC level using the resulting set of indicator indicators.

In the author's opinion, the identification of the strategic opportunities of the society with the application of the principle of synergism, as a result of which the society receives:

- qualitative assessment of FCCJSC in retrospective analysis;
- identification of the synergistic characteristics of society, which it can use to find new opportunities for growth in value;
- development of a management strategy for the value of the joint-stock company.

Measuring synergies is similar in many respects to what is called an «assessment of strengths and weaknesses», which can be applied to the FCCJSC assessment.

The author considers it expedient to assess the financial and corporate state in the context of the following components:

1) property status (I_m), which assesses the sufficiency of resources and the degree of their suitability, determines the totality of property rights and property obligations belonging to the joint-stock company;

2) the financial condition (I_F), which measures the level of efficiency of use of the production and financial resources of the joint-stock company and determines the totality of funds for the repayment of its financial obligations;

3) corporate condition (I_R), which determines the level of profitability and liquidity of corporate rights and market strength of the joint-stock company.

In the context of the FCCJSC formulation assessment task, a list of indicator indicators is selected in the context of its components, namely:

- valuation of the property state – the coefficient of the real value of the fixed assets (X_1), wear and tear factors (X_2) and the usefulness of the fixed assets (X_3), net assets (X_4);
- financial position estimates – coverage ratio (total liquidity) (X_5), return on equity (X_6), return on assets (X_7), business profitability (X_8) financial leverage ratio (X_9), financial strength (X_{10});
- share capital (X_{11}), earnings per share (X_{12}), return on equity (x_{13}) dividend yield or dividend payout ratio (X_{17}), capitalization (X_{14}), share value (X_{15}), corporate book value indicator rights (X_{16}).

To justify the system of indicators for assessing the financial and corporate state of joint-stock companies, let's use the results of the content analysis of references to similar indicators in the economic literature [1, 3, 5, 10]. Based on the results of such analysis, it is determined that a large number of different financial and non-financial ratios are used to assess the financial and property status and efficiency of the joint-stock company's operation. But most often these are indicators of liquidity and solvency, profitability and business activity. Within the framework of the concept of a system for assessing the efficiency of management, a balanced system of interrelated indicators was proposed in work [4].

In general, summarizing various theoretical views and ideas about the system of indicators for assessing the financial and property status and efficiency of the joint-stock company, it can be noted that there are a large number of indicators that need their further improvement.

To access FCCJSC indicators, scientists [2, 4, 7] put forward various methods of evaluation. The most common among them are: the use of the Harrington function, an integrated approach using the scoring method, taxonomic analysis, expert judgment, correlation regression analysis, multiple regression, and the like.

The use of an integral indicator for assessing the financial, financial and property status and the level of corporate governance is the most common. However, the methodology for assessing it can differ as a result of the use of various methods, such as the creation of rank by means of a number of indicators, cluster analysis, the matrix method, the scoring method, the method of comparative rating, the method of rating financial analysis, and the like. Thus, it can be determined that there is no single approach to an integrated assessment of the financial-corporate state and the availability of methodological approaches is quite wide.

In connection with the foregoing, the author proposed the use of the multiple regression method – to justify the selection of FCCJSC indicators and the ball approach to its integral evaluation with the aim of further adjusting the value of the joint-stock company.

The advantage of using such index characteristics is the leveling of the scale of the evaluated societies, the level of their status and thus the availability of comparability of data for different societies in the context of FCCJSC components. To determine the FCCJSC integral indicator, as a single denominator of various indicators in its economic nature, the most simple and convenient way is to score the relative importance of the above indicators.

The FCCJSC evaluation procedure is performed according to the following algorithm. First, apply the multiple regression method to form a well-founded list of indicators-indicators of the FCCJSC assessment. Secondly, quantify each FCCJSC component on a scale. Thirdly, to determine the value of the integral indicator for each indicator, for each component of FCCJSC and in general.

The key point of the FCCJSC assessment is the development of a scoring rating scale and criteria of compliance (optimality). According to the criterion of conformity of optimality for each indicator, its normative value is accepted. The level of significance of indicator (its weight) is taken to be equivalent in influence and is calculated as:

$$R_i = 1/n, \quad (1)$$

where R_i – the level of significance of the FCCJSC indicator; n – the number of indicators.

The estimated value is calculated for each FCCJSC indicator according to the formula:

$$Ox_i = S \cdot R_i, \quad (2)$$

where Ox_i is the estimated value of a separate FCCJSC indicator; R_i – level of significance of FCCJSC indicator; S – score, depending on the change in the individual FCCJSC indicator.

The integral value for each FCCJSC component (I_{fc}) is calculated by formula (3), and the total integral value of FCCJSC is calculated by the formula (4):

$$I_m = \sum_{i=1}^N R_{im} \cdot B_{im},$$

$$I_f = \sum_{i=1}^N R_{if} \cdot B_{if}, \quad (3)$$

$$I_c = \sum_{i=1}^N R_{ic} \cdot B_{ic},$$

$$I_{fc} = I_m + I_f + I_c. \quad (4)$$

The assessment scale is established using the method of expert assessments, applying own criteria or already existing scales of assessment. With the help of mediators (a group of specialists of 8 analyzed public joint-stock companies for which calculations are performed), a scoring scale is obtained for each FCCJSC indicators, presented in Table 1.

Table 1

The scoring scale for the indicator of the financial and corporate state of joint-stock companies

Score	Characteristic features
0	There is no growth dynamics in the period under review in comparison with the previous one
0.5	Dynamics of growth in the period under review in comparison with the previous one
1	The indicator has a value below the optimality criteria
1.5	Indicator has a value above the criteria of optimality
2	The indicator has a value at the level of the criteria of optimality

According to the data of Table 1 according to the developed scale with the criteria for scoring, each indicator is assigned from 0 to 2 points, depending on the quantitative value. Two selection criteria are determined: the growth or decline of the indicator in the period under review and its compliance or non-compliance with normative values. Thus, the minimum score will be at level 1, and the maximum – at the level of 2.5.

To obtain comparable data, standardization of scores is made by dividing the actual scores into the maximum possible ones.

Table 2 shows indicators for the evaluation of the FCCJSC, criteria for their optimality (compliance).

Table 2

Indicators of the financial and corporate state of joint-stock companies and the criteria for their optimality

Indicators	Indicator symbols n, x_{ij}	The optimality criterion	State component (I_j)
Factor of real value of fixed assets	X_1	>0.5	Property (I_m)
Depreciation coefficient of fixed assets	X_2	<0.5	
Fixed assets ratio	X_3	>0.5	Property (I_m)
Net assets, thousand UAH	X_4	Positive value, growth	
Coefficient of coverage (total liquidity)	X_5	>1	Financial (I_f)
Profitability of equity capital	X_6	>0 , growth	
Return on assets	X_7	>0.14 , growth	
Profitability of operations	X_8	>0.15 , growth	
Coefficient of financial leverage	X_9	<1	
Coefficient of financial stability	X_{10}	>1	Corporate condition (I_c)
Profitability of operations	X_8	>0.15 , growth	
Coefficient of financial leverage	X_9	<1	
Coefficient of financial stability	X_{10}	>1	
Dividend payout ratio	X_{14}	>0 , growth	
Capitalization, thousand UAH	X_{15}	>0 , growth	
Value of shares, UAH	X_{16}	>0 , growth	
The indicator of the balance rate of corporate rights	X_{17}	>0 , growth	

A schematic representation of the procedure for the FCCJSC integrated evaluation is shown in Fig. 1.

To approximate the developed procedure for the integrated FCCJSC assessment, a number of joint-stock companies of the Kharkiv region (Ukraine) are selected on the basis of data from a selective set of 8 public joint-stock companies. For the objectivity of research, societies have been elected for different spheres of activity and different values of indicators. A characteristic feature of the overwhelming majority of domestic joint-stock companies is that they are formed during privatization and have a large number of shares in statutory funds with a low nominal value [1]. This is evidenced by the analysis of public joint-stock companies of the Kharkiv region (Ukraine), which proved that the nominal value of 1 share as of 2016 fluctuates within 0.01 UAH/pcs. (OJSC KhPAS, OJSC KhZMK) to UAH 4.6 UAH pcs. (OJSC Stoma).

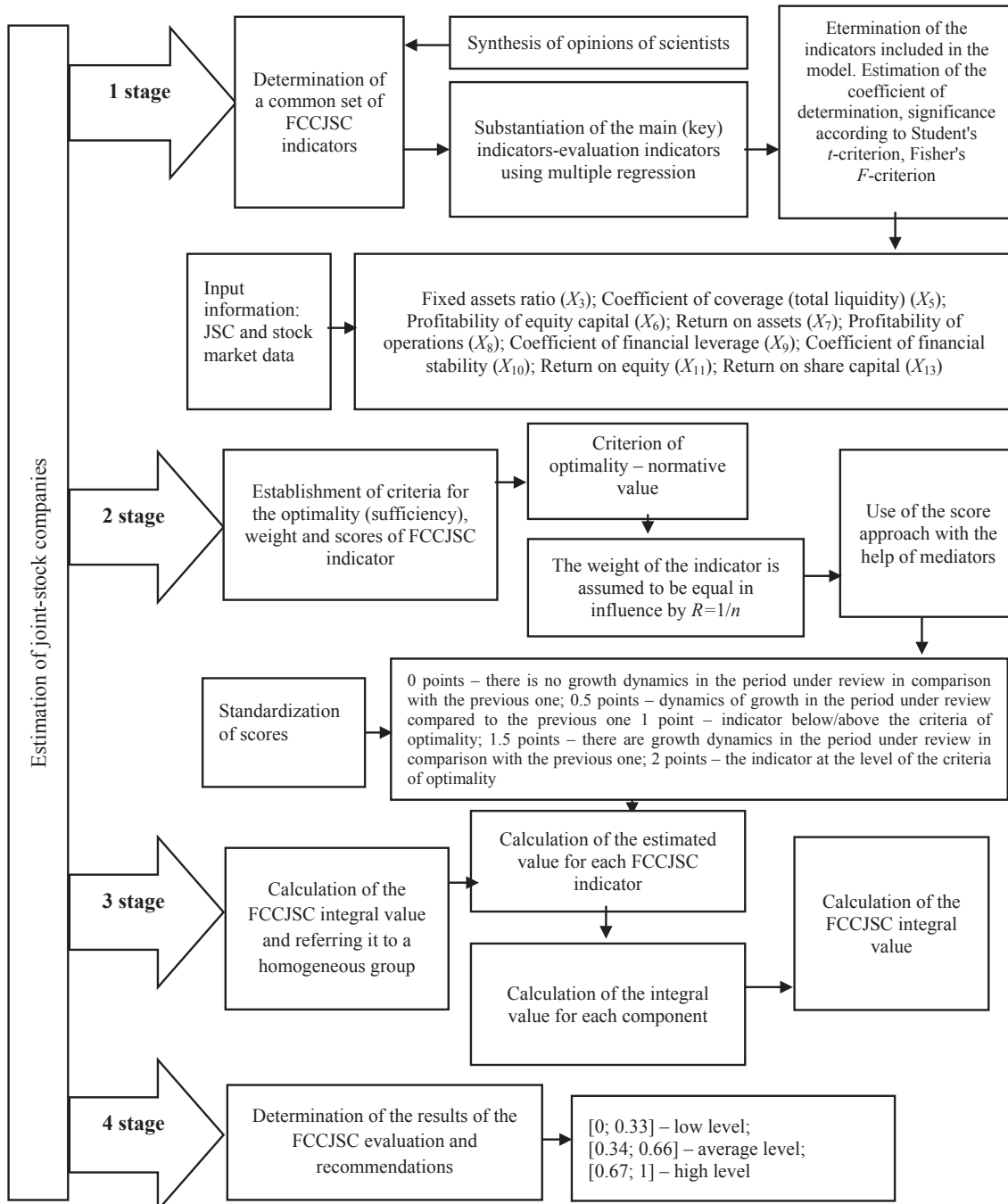


Fig. 1. Procedure for the integrated assessment of the financial and corporate state of joint-stock companies

To substantiate the choice of the main (key) of assessment of FCCJSC indicators, the multiple regression method is chosen. The multiple regression method is implemented using Statistica 10.0 SPP. The results of the allocation of the most significant FCCJSC indicators by the multiple regression method are presented in Table 3.

On the original Table 3 shows the coefficient of determination indicates the interdependence of a set of indicator indicators with the result. The Fisher criterion is calculated to be much higher than the tabulated value for all FCCJSC components and indicates the reliability and adequacy of the results obtained. Using the scoring scale for indicator indicators (Table 1) and formulas (1)–(3), the estimated values for each FCCJSC component are calculated.

The integral value of the results of the FCCJSC assessment according to the proposed procedure for the public joint-stock companies studied after standardization is given in Table 4.

The data of Table 4 indicate a different level of each FCCJSC component among the studied joint-stock companies. There is not much discrepancy in the individual FCCJSC components. A low level of FCCJSC among all the companies studied is observed in JSC «SO «Nadia». The high level of FCCJSC indicates that such societies have a stable and successful activity, have reserves and opportunities to increase the value of society.

To classify the FCCJSC level, it is necessary to establish criteria under which the state varies from 0 to 1.

Given that FCCJSC includes three components, a ranking of the level is assumed to be equivalent in its nature to the action and influence that will have equal intermediate values.

Thus, it is established that:

- the low FCCJSC level is within [0; 0.33];
- the average FCCJSC level is within [0.34; 0.66];
- the high FCCJSC level is within [0.67; 1].

In view of the foregoing, three levels of FCCJSC have been formed, to which the study of joint-stock companies in accordance with the calculated integral value, which are presented in Table 5.

According to the results of the study conducted according to the data of Table 5 it is determined that 1 company has a low level of FCCJSC, 1 society has a high level, and all the rest – the average level of FCCJSC.

Table 3

The results of highlighting the most significant indicators of the financial and corporate state of joint-stock companies

State component	Indicators	Determination coefficient R^2	Fisher criterion
Property (I_m)	Coefficient of the validity of fixed assets (X_3)	0.996	926.17
	Net assets (X_4)		
Financial (I_f)	Coefficients (total liquidity) (X_5)	0.8187	0.72398
	Return on equity (X_6)		
	Return on assets (X_7)		
	Profitability of operations (X_8)		
	Coefficient of financial leverage (X_9)		
	Coefficient of financial stability (X_{10})		
Corporative (I_c)	Return on equity (X_{11})	0.999	14122
	Earnings per share (X_{12})		
	Return on equity (X_{13})		
	Dividend payout ratio (X_{14})		
	Capitalization (X_{15})		

Table 4

Integral value of the results of the assessment of the financial and corporate state of joint-stock companies after standardization

FCSJSC name	OJSC «SB «Nadezhda»	PJSC «KhZMK»	PJSC «Stoma»	PJSC «KhPAS»	OJSC «Turboatom»	OJSC «Electromashina»	PJSC «Pharmstandard-Biolek»	PJSC IC «Mega-Garant»
Property (I_m)	0.5	0.4	0.5	0.5	0.5	0.6	0.68	0.5
Financial (I_f)	0.27	0.47	0.67	0.67	0.67	0.67	0.73	0.57
Corporative (I_c)	0	0.6	0.6	0.4	0.4	0.4	0.6	0.2
FCSJSC integral value	0.26	0.49	0.59	0.52	0.52	0.55	0.67	0.42

Table 5

The results of the distribution of public joint-stock companies in the Kharkiv region (Ukraine) according to the levels of the financial and corporate state of joint-stock

Level name	Limit	PJSC name
High level	[0.67; 1]	PJSC «Pharmstandard-Biolek»
Average level	[0.34; 0.66]	PJSC «KhZMK», PJSC «Stoma», PJSC «KhPAS», OJSC «Turboatom», OJSC «Electromashina», OJSC IC «Mega-Garant»
Low level	[0; 0.33]	OJSC «SB «Nadezhda»

7. SWOT analysis of research results

Strengths. The experimental verification of the developed procedure for the integrated assessment of the financial and corporate state of joint-stock companies is carried out on the data of 8 joint-stock companies of the Kharkiv region. Attention is focused on determining not only the property and financial status, but also the corporate one, which determines the level of corporate rights and the market value of joint-stock companies. The materials of the study are also useful for improving the skills of the management of joint-stock companies.

Weaknesses. The weak side is that reliable data on individual indicators of the corporate state can't always be obtained or because they can't be calculated due to the lack of data.

Opportunities. Opportunities for further research are borrowing the experience of foreign countries in assessing the financial and corporate state of joint-stock companies and taking into account in further studies the level of corporate governance of societies.

Threats. Threats to the results of the conducted studies are that the stock market on which the shares of joint-stock companies are spinning and the initial information for the assessment of indicator indicators is constantly changing. External factors, such as investment climate, economic and political stability, the level of solvency of clients, regulatory and legislative regulation of the stock market, and the like, also affect the state of joint-stock companies.

8. Conclusions

1. The analysis of the existing indicators of the assessment of the financial and corporate state of joint-stock companies is conducted and 17 indicator indicators are identified from various analytical groups that characterize the property, financial and corporate status of joint-stock companies.

2. Using the methods of analysis and synthesis, it is determined that the most appropriate methods are: to select indicators for assessing the financial and corporate state of joint-stock companies – the multiple regression method for determining the level of the financial and corporate state – a ballistic approach using an integral indicator.

3. The proposed procedure for assessing the financial and corporate state of joint-stock companies, which includes a sequence of stages:

- 1) the formation of an informed list of FCCJSC indicators evaluation;
- 2) a quantitative description of each FCCJSC component on a scale;
- 3) determination of the value of the integral indicator for each FCCJSC component and in general.

4. As a result of the implementation of the approved procedure for assessing the financial and corporate situation for 8 joint-stock companies of the Kharkov region, their level is determined, providing a targeted approach to its assessment, which allows to identify reserves and opportunities for the growth of value or those weak positions of society, which need to be eliminated.

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