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METHODOLOGICAL ASPECTS OF MEASURING CORPORATE SOCIAL PERFORMANCE

The article deals with the methodological aspects of measuring corporate social performance. Despite significant difficulties in the development of socially responsible management in Ukraine, we have identified possible prospects of socially responsible business. The approach to measuring corporate social performance is proposed.

Keywords: corporate social responsibility; corporate social performance; company's reputation; socially oriented enterprises.

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МЕТОДОЛОГІЧНІ АСПЕКТИ ОЦІНЮВАННЯ КОРПОРАТИВНОЇ СОЦІАЛЬНОЇ ДІЯЛЬНОСТІ

У статті розглянуто методологічні аспекти оцінювання корпоративної соціальної діяльності. Незважаючи на значні труднощі в розвитку соціально відповідального управління в Україні, визначено можливі перспективи розвитку соціально відповідального бізнесу. Запропоновано підхід до оцінювання корпоративної соціальної діяльності.

Ключові слова: корпоративна соціальна відповідальність; корпоративна соціальна діяльність; репутація компанії; соціально орієнтовані підприємства.

Форм. 4. Табл. 3. Рис. 3. Літ. 14.

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МЕТОДОЛОГИЧЕСКИЕ АСПЕКТЫ ОЦЕНКИ КОРПОРАТИВНОЙ СОЦИАЛЬНОЙ ДЕЯТЕЛЬНОСТИ

В статье рассматриваются методологические аспекты оценки корпоративной социальной деятельности. Несмотря на значительные трудности в развитии социально ответственного управления в Украине, нами определены возможные перспективы развития социально ответственного бизнеса. Предложен подход к оценке корпоративной социальной деятельности.

Ключевые слова: корпоративная социальная ответственность; корпоративная социальная деятельность; репутация компании; социально ориентированные предприятия.

Introduction. The dominant tendencies in the development of the global business community determine the importance of corporate social responsibility (CSR). The discussions about the content and significance of social responsibility have been passing in leading academic and business circles since the 1960s. CSR is one of the key factors in establishing an effective dialogue between government, business and civil society. The majority of companies in Ukraine are not aware of their role and responsibility in the socioeconomic development of the country. Social partnership between companies, business, government and community of Ukraine is characterized by fragmentariness and lack of systematicness. Nevertheless, the most successful enterprises start to pay attention to such aspects as company's reputation, corporate brand, staff loyalty, sustainable development etc.

Analysis of the research and publications. Stages in the formation and development of the term "corporate social responsibility" are represented in the surveys of the famous foreign scientists such as A.B. Carroll (1999), C. Schwartz (2003), R. Steurer (2005), M. Van Marrewijk (2003), D. Wood (1991) and others. Modern literature uses the CSR concept "as the base point, building block, or point-of-departure for other related concepts and themes, many of which embraced CSR-thinking and were quite compatible with it. CSP, stakeholder-theory, business ethics theory, and corporate citizenship were the major themes that took center stage" (Carroll, 1999). Corporate social responsibility is not the same as ethical behaviour, but it is "an important component of such action" (Gail & Nowak, 2006). The European Commission has put forward a new, simpler definition of corporate social responsibility as "the responsibility of enterprises for their impacts on society" (The European Commission, 2011).

It should be noted that fundamental research on social responsibility haven't been held in Ukraine yet. The majority of researches were initiated by community organizations. The results of these researches are characterized by declarativeness and lack of practical orientation. That's why, the display of social activity by enterprises is not the part of their strategy for improving company's business reputation. The main reason of that is misunderstanding by top-managers of the impact of corporate social responsibility on reputation. Therefore, it is important to measure companies' social performance and show how their performance can be improved.

The object of this research is the process of measuring corporate social performance.

The aim of research is to adjust existing economic-mathematical methods of analysis for measuring corporate social performance and the impact of corporate social responsibility on company's reputation.

The methods of the research are economic-mathematical methods of correlation analysis, multiple regressions, fuzzy sets, methods of Bartlett and Thompson and cointegration analysis.

Taking into account the complexity of social-economical researches of corporate social responsibility, it is important to make economical measuring of the impact of corporate social responsibility on company's reputation adjusting the economic-mathematical methods for this evaluation.

This paper represents the research focused on the development of methodology for investigation of the corporate social responsibility concept with the use of economic-mathematical methods of analysis.

Challenges and opportunities for company's reputation in Ukraine. The development of modern economic science is aimed at providing sustainable economic growth by achieving social, economic and environmental priorities of society. The approaches to the interpretation of the term "corporate social responsibility" by managers of different organizational levels were analyzed in this paper. This study is based on the results of activities of 57 industrial enterprises in 4 areas of engineering (heavy engineering industry, chemical engineering, electrical engineering, mechanical engineering) in 3 regions of Ukraine (Eastern, Western, Central). The results of the research are based on the surveys and questionnaires of the managers. 175 people were involved in the process of the research, 75 of whom worked as managers in large companies, 46 in medium enterprises and 54 in small firms (Table 1).

Table 1. The features of social responsibility perception by managers in Ukrainian companies, %, author's calculations

The components of social responsibility	Companies		
	Small (up to 50 persons)	Medium (50–250 persons)	Large (more than 250 persons)
Concordance with social standards in the sphere of employee payment and personnel safety	70.5	66.5	63.1
Training and staff development	68.4	50.8	56.2
Meeting the needs of customers for product quality	58.7	43.5	47.8
Paying taxes and fees to state budget on time	40.9	38.6	36.9
Creating new jobs	9.5	16.8	34.8
Reliability in relations with partners and customers	26.5	19.9	34.7
Openness and transparency of activities	26.5	18.6	20.4
Environmental programs implementation	3.4	11.8	15.4
Charity	3.2	8.9	12.6
Meeting the demands of shareholders and investors	10.4	28.5	29.6
The development of social infrastructure	1.2	19.5	26.7

The results of the top managers' survey displayed that 8.7% of them defined social responsibility as a way to increase competitiveness of enterprises. Also 56.5% of the respondents considered social responsibility as the approach to implementing social programs to improve working conditions; 50.8% emphasized the importance of HR development; 43.5% noted the importance of socially oriented policy towards to customers; 28.6% declared the obligation to pay taxes and other duties to the budget on time. Thus, the majority of companies perceive social responsibility as the direction of internal social programs. Such social programs aim to meet the needs of staff for providing decent wages, health and safety, training and development.

Challenges and incentive measures for promoting business social responsibility in Ukraine. Key factors which limit the development of socially responsible management at Ukrainian enterprises were analyzed in this research. According to the survey, we have found out that the main obstacles for the development of social responsibility are the lack of financial resources, absence of the acceptable legislation and low level of motivation in business (Figure 1). In addition, the lack of appropriate tax incentives leads to the loss of interest in Ukrainian enterprises to implement socially responsible programs.

Despite significant difficulties in the development of socially responsible management in Ukrainian enterprises, we have identified the possible prospects for socially responsible business in Ukraine. These results showed that tax optimization, reduce of regulatory and administrative pressure are the most important incentives to develop socially responsible business in Ukraine (Figure 2).

The results of the research allow making the conclusion that the implementation of CSR principles in business practice in Ukraine is a privilege of big diversified industrial enterprises. Thus, the majority of top managers consider social problems must be resolved by government structures. Furthermore, the main goal of business is to provide a profit and pay taxes to budgets. Despite the dominance of certain negative tendencies in CSR development in Ukraine, the representatives of large companies emphasize the advisability of participation in companies for solving social problems in the society.

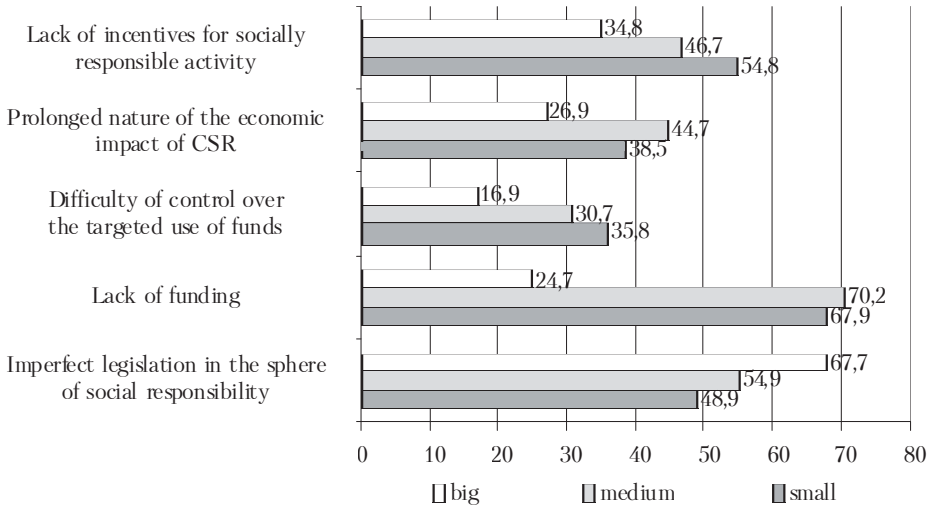


Figure 1. The factors which limit the development of business social responsibility in Ukraine, %, author's calculations

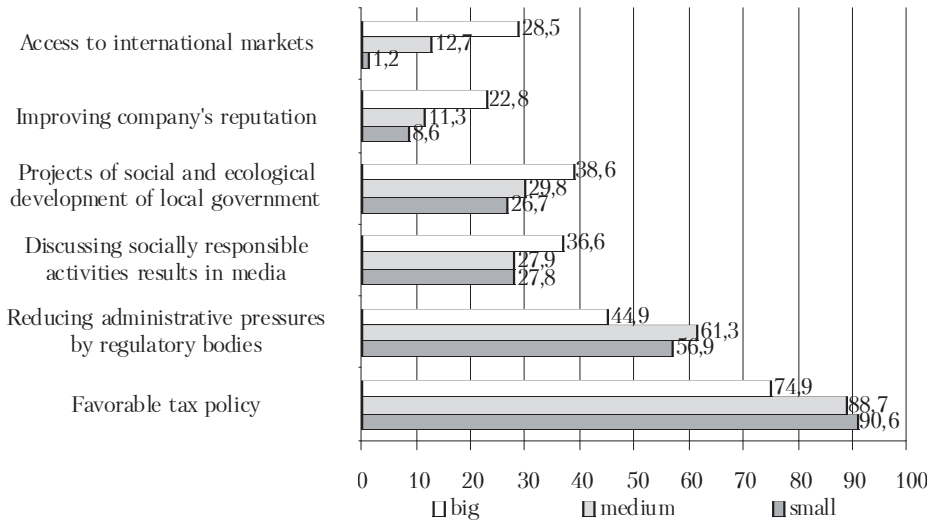


Figure 2. Incentive measures to promote business social responsibility in Ukraine, %, author's calculations

The simulation of corporate social performance. The creation of conditions for socially oriented management at enterprises requires the research on measuring the CSR impact on business reputation. When companies are known to be reputable, customers feel more comfortable doing business with them. Consequently, shareholder value rises along with a company's bottom line. Companies which invest in social projects, such as development of local communities, can expect a very positive return on such investments.

We identified a set of quantitative and qualitative indicators which can estimate the level of socially oriented business management (Table 2).

Table 2. Quantitative and qualitative indicators of CSR evaluation process, author's

Quantitative indicators		Qualitative indicators	
Sign	Indicator	Sign	Indicator
x_1	Net profit	y_1	Social policy of enterprise
x_2	Net income	y_2	Quality of corporate management system
x_3	Net assets	y_3	Level of top management competence
x_4	Share ratio of assets	y_4	System of training and staff development
x_5	Share of fixed assets in total assets	y_5	Level of employees' social protection
x_6	Return on assets	y_6	Corporate culture
x_7	Return on equity	y_7	Business practices in relation to consumers
x_8	Profitability	y_8	Business practices in relation to suppliers and other business partners
x_9	Value debt and equity	y_9	Correspondence with legislation of Ukraine
x_{10}	Gross profit margin	y_{10}	Regularly compilation of social accounting
x_{11}	Liquidity	y_{11}	Regional employment rate
x_{12}	Number of employees	y_{12}	Implementation of environmental programs
x_{13}	Labour productivity	y_{13}	Participation in regional social development programs
x_{14}	Labour costs	y_{14}	Charity and sponsorship
x_{15}	Salary	y_{15}	Informatization of social programs implementation
x_{16}	Net revenue per employee		
x_{17}	The share of voluntary social costs in net income		
x_{18}	The share of social costs in total costs		

We have analysed key performance indicators of industrial enterprises in 4 areas of engineering (heavy engineering industry, chemical engineering, electrical engineering, mechanical engineering) in Eastern, Western and Central regions of Ukraine during 2004–2009. The complex and ambiguous dependency between different groups of quantitative and qualitative indicators was defined. Thus we decided to use the methodology of fuzzy sets in the analysis of the parameters that have indirect statistical relationships among the indicators of measuring corporate social responsibility. In fact, the fuzzy set theory allows for approximate values and inferences as well as incomplete or ambiguous data (fuzzy data) as opposed to only relying on crisp data (binary yes/no choices). Fuzzy logic is able to process incomplete data and provide approximate solutions to problems other methods find difficult to solve.

To evaluate the impact of quantitative and qualitative indicators of CSR on company's reputation it is worth applying the correlation analysis to the evaluation of mutual influence of quantitative and qualitative indicators. Let us suppose that $x_i, i = 1, \dots, n$ are the quantitative indicators and $y_j, j = 1, \dots, m$ are the qualitative indicators. In addition, the input data have the set of autocorrelation relationships. It should be noted that some coefficients in the matrix of pair correlations are linearly dependent. In this way the determinant of matrix is equal to zero. Thus, it is necessary to make a rejection of input data for the level of pair correlation parameter $k > 0.7-0.8$ for

the groups of variables x_i and y_j , which are the elements of correlation matrix $K = \|kx_p, x_q\|$:

$$kx_p, x_q = \text{COV}(x_p, x_q) / (D[x_p^2] \times D[x_q^2]), \quad (1)$$

where $\text{COV}(x_p, x_q)$ – the covariance between the sets of variables x_p, x_q ; $D[x_p^2], D[x_q^2]$ – the variance of variables.

Furthermore, the correlation between data which is less than level k , can be united in groups to determine the indicators by fuzzy sets method. If the correlation between the data is more than level k , then these data should be analyzed to find out the linear statistical relationship. In addition, these data are characterised by approximating linear dependence in the form: $x_p = a \times x_q + b$ або $y_p = c \times y_q + d$.

Thus, the results of correlation analysis allow defining the pair of functions:

$$X \rightarrow f \in \{d1, \dots, dl\}; \quad (2)$$

$$Y \rightarrow g \in \{h1, \dots, hk\}, \quad (3)$$

where $\{d1, \dots, dl\}, \{h1, \dots, hk\}$ – sets of l and k elements created due to the correlation characteristics.

It is important to define the fuzzy scale of features classification and select the type of fuzzy number. Let us choose the 5-interval scale classification of fuzzy sets, namely: "VL" – a very low level of indicator (30%), "L" – low level of indicator (50%), "M" – satisfactory level of indicator (70%), "H" – high level of indicator (80%), "VH" – very high level of indicator (90%).

In addition, the trapezoidal fuzzy numbers (T number) with variable threshold data $0.3 \pm a$; $0.7 \pm b$ must be defined. The factor model will be based on the indicators which can be represented by 20-bit fuzzy number.

Determining the membership function $\mu \in \{0;1\}$ is based on the histogram which characterises the entering of input data in the observed interval fuzzy scale.

The membership function can be described as:

$$\mu_i^j(X, Y, Z), \quad (4)$$

where X, Y – input variables; Z – output variable; i – input indicator; j – term of 5-interval scale.

Moreover, the method of multiple regressions was applied to define the influence coefficients. The quantitative and qualitative indicators of socially oriented management at 16 enterprises were defined in different regions of Ukraine. In the results of the research 4 groups of the variable sets are: $x_2 = f_1(x_3, x_{11})$, $x_{13} = f_2(x_3, x_{11})$, $y_1 = f_3(y_5)$, $y_2 = f_4(y_8)$ and two levels of tab model were designed and demonstrated the correlation matrix and linear approximation between the dependences of variables: the first level of tab model: $x_2 = f_1(x_3, x_{11})$, $x_{13} = f_2(x_3, x_{11})$, $y_1 = f_3(y_5)$, $y_2 = f_4(y_8)$; the second level of tab model: $z_1 = f_5(x_2, x_{13}, y_1, y_2)$, where z_1 – company's reputation. Furthermore, according to the levels of tab model, impact coefficients of social responsibility on company's reputation were simulated (Figure 3).

The most influential factors which cause the improving of corporate reputation are business practices in relation to suppliers and other business partners (y_8), level of top management competence (y_3), charity and sponsorship (y_{14}), participation in regional social development programs (y_{11}).

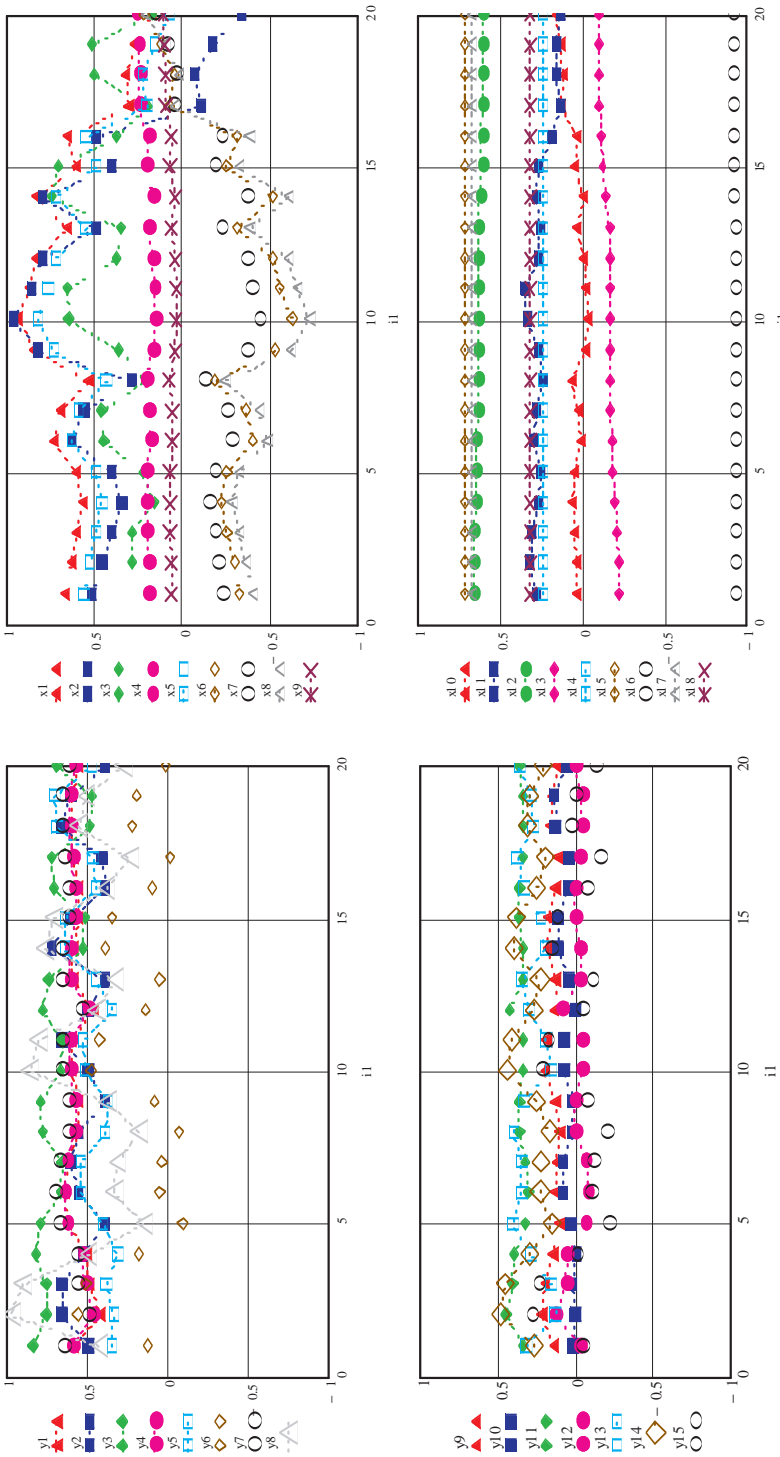


Figure 3. Impact coefficients of social responsibility on company's reputation (mechanical engineering enterprise, central region of Ukraine), author's calculations

The levels of companies' reputation are represented in Table 3.

Table 3. The levels of companies' reputation, author's calculations

<i>Region of Ukraine</i>	<i>Scope of activity</i>	<i>Level of reputation</i>
Central	mechanical engineering	0.85
	electrical engineering	0.53
	chemical engineering	0.73
	mechanical engineering	0.54
	mechanical engineering	0.57
South-Eastern	heavy engineering industry	0.97
	heavy engineering industry	0.92
	mechanical engineering	0.30
	heavy engineering industry	0.40
	heavy engineering industry	0.96
	mechanical engineering	0.31
	mechanical engineering	-0.62
Western	electrical engineering	0.52
	electrical engineering	-0.56
	chemical engineering	0.97
	heavy engineering industry	0.37

It should be noted that there are only 2 enterprises of all which have the highest level of reputation. Such results are conditioned by high share of social costs in total costs, active participation in regional social development programs, high level of top management competence, developed corporate culture, business practices in relation to consumers and other measures.

In addition, the forecasting of company's reputation change was made. The methods of Bartlett and Thompson were used for this. The stabilization, falling and rising scenarios were offered for 2013–2015. Moreover, we proposed 3 levels of company's reputation: high level ($z \in (0.7–1]$); satisfactory level ($z \in [0.4–0.7]$); critical level ($-0.3 < z < 0.4$). The results of forecasting were corrected by using the methodology of cointegration analysis with the Dickey-Fuller test. The implementation of economic forecasting with mathematical methods allowed defining the strategies of socially-oriented development in mechanical engineering companies in the long term.

All things considered, there are key factors which have significant impact on company's reputation: quality of corporate management system, level of top management competence, business practices in relation to consumers, business practices in relation to suppliers and other business partners, implementation of environmental programs, participation in regional social development programs, charity projects and so on. However, these social factors must not deny the priority of economical interests of an enterprise. In this way the results of our research confirmed our hypothesis that the impact of CSR programs on business reputation should be evaluated with the use of economic-mathematical methods of fuzzy sets. Thus, the features of socially oriented enterprises are characterised by validity and trustworthiness.

Conclusions. In Ukraine social responsibility business develops and requires the adoption of civil legislative acts. Ukrainian legislation provides the mandatory levy of social payments in budget, however, this process is accompanied by the lack of business motivation to realize social and ecological programs on the voluntary basis. Despite significant difficulties in the development of socially responsible manage-

ment in Ukraine, we have identified the possible prospects of socially responsible business.

The most important activities which impact corporate reputation are quality of corporate management system, level of top management competence, business practices in relation to consumers, business practices in relation to suppliers and other business partners, implementation of environmental programs, participation in regional social development programs, charity projects and so on. However, these social factors must not deny the priority of economical interests of an enterprise.

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