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EVALUATION OF THE IMPACT OF CORPORATE SOCIAL RESPONSIBILITY ON COMPANY'S REPUTATION

Nataly Simchenko

Professor of Management Department

National Technical University of Ukraine "Kyiv Polytechnic Institute"

Summary

Corporate social responsibility is the form of advisable activity which is made by organizations to integrate social and environmental concerns in their activity and in their interaction with the strategic stakeholders (consumers, partners, employees, local community, public institutions). Despite of significant difficulties in the development of socially responsible management in Ukraine, we have identified the possible prospects of socially responsible business. The results of researches allowed defining key characteristics of socially oriented enterprises. These characteristics can be used in the process of identifying the levels of social orientation of enterprises. We identified a set of quantitative and qualitative indicators which can estimate the state of socially oriented business management. The results of the integral indicators calculating of socially oriented management allowed defining the coefficients which show the level of company's reputation. The most important activities which impact on the corporate reputation are good business practice in relation to suppliers and other business partners, competency management system, charity, sponsorship activities and regional employment rate.

Keywords:corporate social responsibility, company's reputation, socially responsible management, socially oriented enterprises.

Introduction

The dominant tendencies in development of the global business community cause 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. The stages of formation and development of term 'corporate social responsibility' are represented in surveys of the famous foreign scientists such as Carroll, Schwartz, Steurer, Van Marrewijk, Velasquez, Wood 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).

CSR is one of the key factors for creating an effective dialogue between the government, business and civil society. The development of CSR displays the level of partnership between companies, governments and main persons of civil society in solving social problems and accelerating the quality development of society.

The majority of companies in Ukraine is not aware oftheirroleandresponsibilityin the social-economic development of the country. Thesocial 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 toaspects suchas company's reputation, corporate brand, corporate loyaltyof staff, sustainable development. Ukrainian businessmen suggest that social activity can improve the company's reputation but deny the necessity of realization of CSR programs on a voluntary basis.

It should be notedthat fundamental researches of development in social responsibility haven't been held in Ukraine. The majority of researches were initiated by community organizations. The results of these

researches are characterized by declaritiveness and lack of practical orientation. That's why, the displayof social activity by enterprises is not the part of their strategy for improving the company's business reputation. The main reason of that is misunderstanding by top-managers of the impact of corporate social responsibility on company's business reputation. Therefore, it is important to measure companies' social responsibility and convince how their performance can be improved.

1. Problem definition.

Evaluation of the impact of corporate social responsibility on company's reputation can be divided into three parts, and each of them can be treated as hypothesis:

- *Hypothesis 1:* "The integration of social responsibility into corporate practices can play a major role in improving long-term company's reputation.

- *Hypothesis 2:* "Strategy of corporate social responsibility aims to create conditions favourable to sustainable growth and employment generation in the medium and long term".

- *Hypothesis 3: "*The impact of CSR programs on company's business reputation should be evaluated with the using of economic-mathematical methods of fuzzy sets".

Our aim was to adjust existing economic-mathematical methods of analysis for evaluation of the impact of corporate social responsibility on company's reputation and testing mentioned hypotheses.

First of all, a subject of study should be defined. Term 'corporate social responsibility' has many various definitions which are a topic for many social science disputes. To be correct, let's note that under 'corporate social responsibility' we understand the form of purposeful activity, which is made by organizations to integrate social and environmental concerns in their activity and in their interaction with the strategic stakeholders (consumers, partners, employees, local community, public institutions). The main task of this cooperative activity is to provide legislative implementation of organization mission and vision by voluntary and targeted social investments to solve social problems in the long-term perspective.

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

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

2. Challenges and Opportunities for Company's Reputation in Ukraine.

2.1. Components of Corporate Social Responsibility.

The development of modern economicscienceis aimed at providing the sustainable economic growth by achieving social,economic and environmentalpriorities of society.The interaction of socialand economic componentsrequiresto achievefairness (equal *distribution of wealth* among groups or individuals) and legal *assistance*for *poor* people. The integration of ecologicaland economic components requiresassessing the anthropogenicimpactson the environment. These components contribute to human welfare, both directly and indirectly, and therefore represent part of the total economic value of the society. Integration of science and business seeks to integrate the economic, environmental and societal aspects to achieve sustained financial success, safeguard the environment and develop the company's reputation as a respected corporate citizen.

Corporate reputation is the concept that focuses on held company's profit based on its effective partnership with internal and external stakeholders. Corporate reputation is formed by the company's various publics on the basis of information and experience. The company may have a slightly different reputation with each stakeholder according to their experiences in dealing with the organization or in what they have heard about it from others. Many companies put the importance of a good reputation to the back of their minds while they attend to more hard-edged, day-to-day urgencies. On the other hand, many organizations consider their greatest asset to be their good name or reputation. This is especially true in knowledge-based organizations such as professional services firms in the consulting, legal, medical and financial sectors. They work actively to build their good reputation, to develop their core competencies.

The approaches to the interpretation of term 'corporate social responsibility' by managers of different organization levels were analyzed in this paper. This study is based on results of activities of 57 industrial enterprises in four areas of engineering (heavy engineering industry, chemical engineering, electrical

engineering, mechanical engineering) in three regions of Ukraine (Eastern, Western, Central). The results of researches are based on surveys and questionnaires of managers. 175 people were involved in the process of the research, 75 of whom worked as managers in big companies, 46 in medium enterprises and 54 in small firms.

Table 1

The features of social responsibility perception by managers in Ukrainian companies

The components of social responsibility	Companies (%)		
	Small (till 50 persons)	Medium (50-250 persons)	Big (over 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
Payment of taxes and fees to the state budget in 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
The implementation of environmental programs	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 top managers' questioning displayed that 8,7 %oftopmanagersdefined thesocialresponsibility as a way toincrease the competitiveness ofenterprises. Also 56,5 %of the respondents considered the social responsibilityas the approach to implementing the social programsto improve working conditions; 50,8 %of peopleemphasized the importance ofhuman resources development;43,5 % of the respondents noted the importance of socially oriented politicstowards to customers; 28,6 % of people declared the obligatory to pay taxes and other duties to the budget in time. Thus, the majority of companies perceive the 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 personnel, training and development of human resources.

Each company tries to achieve success in business. However, not all the companies are successful. Each of the successful companies has own success secret. One of the most important things in business success is the organization philosophy, mission, vision, credo, cleargoals and objectives which would display the forming of core competencies of organization. In this research we analyzed the approaches to understanding the mission and CSR goals of enterprises by top managers (Figure 1 about here).

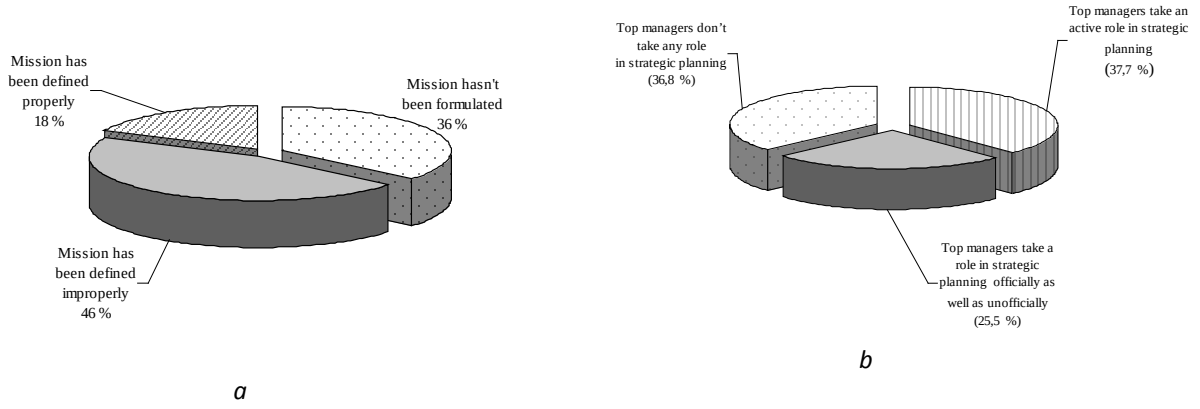


Figure. 1. The approaches to understanding the mission and CSR goals of enterprises by top managers:

а - the forming of mission with regard to the CSR principles; *б* – the forms of taking part of managers in CSR strategic planning

The results of analysis allowed defining some tendencies in understanding of the importance of mission by the top managers of surveyed enterprises. Due to the research, 18 % of respondentsidentified themissionof enterprise as CSR program in regard to its strategic stakeholders; 46%of persons formulatedthe missionas the strategy to get a profit in short period; 36% of respondents couldn't define the sense of enterprise' mission. In addition, the role of top-managers in CSR strategic planning was analyzed. According to results of survey, 37,7 % oftopmanagersare actively involvedin CSR strategic planningofcompanies;25,5 %of respondents thought that they took part in the process of forming mission informally; 36,8 % of persons declared that they have never been involved in CSR planning.

2.2. Challenges and Incentive Measures for Promoting Business Social Responsibility in Ukraine.

Key factors which limit the development of social responsible management in Ukrainian enterprises were analyzed in this research. According to survey, we have found out that the main obstacles for the development of social responsibility industry are lack of financial resources, absence of the acceptable legislation and low level of motivation in business (Figure 2 about here). In addition, the lack of appropriate tax incentives in state leads to loss of interest in Ukrainian enterprises to implement the social responsible programs.

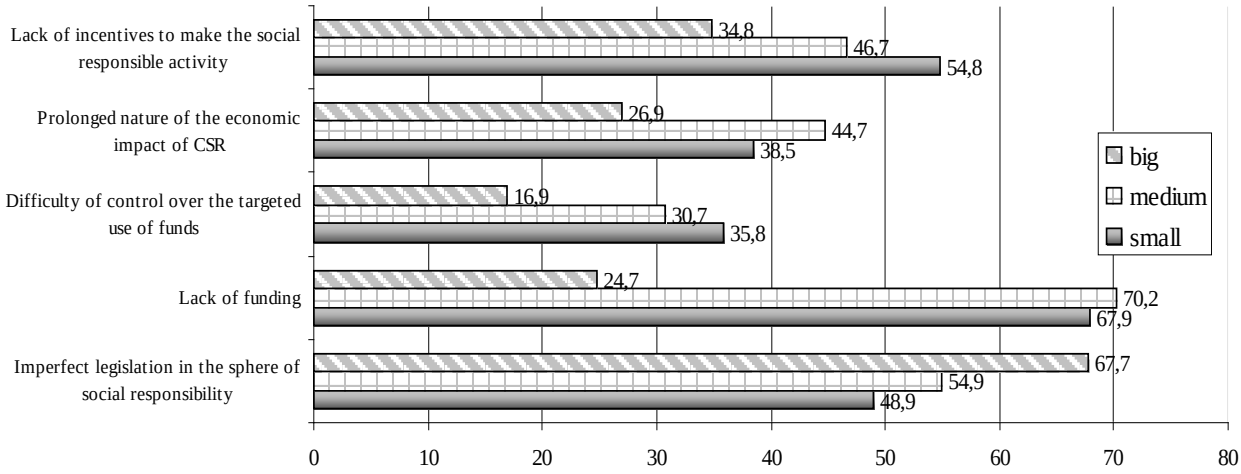


Figure 2. The factors which limit the development of business social responsibility in Ukraine

(percentage of companies)

Despite of the significant difficulties in the development of socially responsible management in Ukrainian enterprises, we have identified the possible prospects of socially responsible business in Ukraine. These results showed that tax optimization, reduce of regulatory and administrative pressure are the most important incentives to develop the social responsible business in Ukraine (Figure 3 about here).

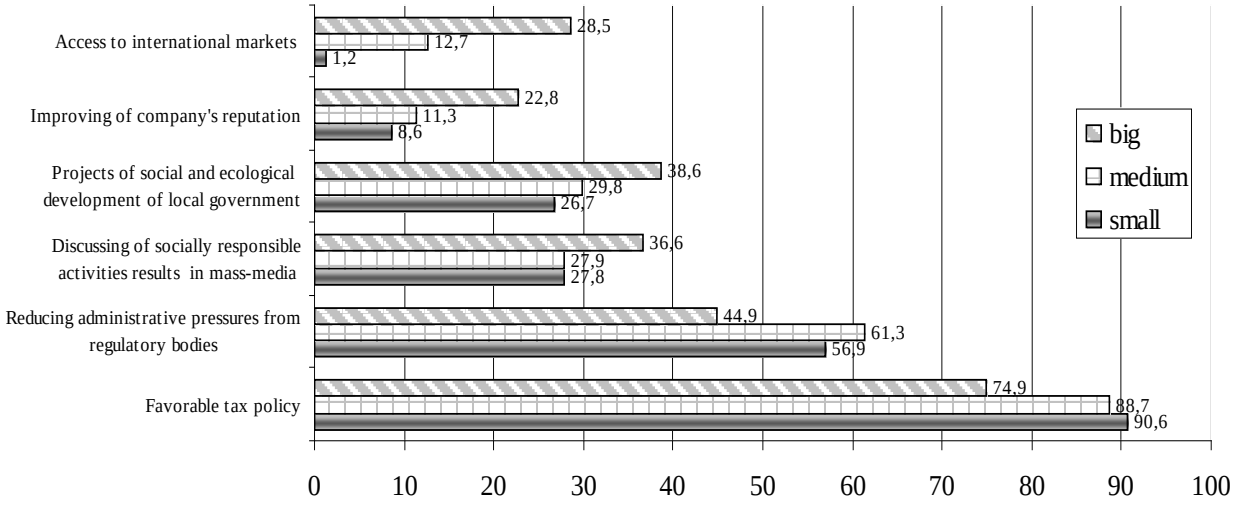


Figure 3. Incentive measures to promote business social responsibility in Ukraine (percentage of companies)

The results of researches allow making a conclusion that the implementation of CSR principles inbusiness practice in Ukraine is a privilege of big diversified industrial enterprises.Thus,the majority of top managers consider thatsocial problemsmust be resolved by government structures. Furthermore, the main goal of businessis to providea profit and pay the taxes in budget.Despite of the dominance of certain negativetendencies inCSR development in Ukraine, the representativesof big companies emphasize the advisabilityof participation in companies for solvingsocial problemsin society.

3. Basic Characteristics of Socially Oriented Companies.

According to the researches, socially orientedenterprise canimplement the principlesof sustainable developmentinits activitiesto ensure the harmonization ofsocial,economic and environmentalpriorities with the stakeholders' interests. Evaluation of social orientation can be madeon the basis of bringing into proper correlation between the harmonization of organization's goals and theexpectations of managers, staff, investors and other strategic stakeholders. We analyzed the kinds of the obligatory social activity of enterprises and forms of social activity on a voluntary basis.

In Ukraine the obligatory social activity of enterprises includes such social payments: social payments for mandatory state social insurance; social payments for mandatory state pension insurance and social payments for pension insurance on a voluntary basis; social payments for obligatory state social insurance for unemployment cases.

The additional social costsrefer to the costs that are linked with a particular social mission. In social enterprises with an employment mission, these costs are often related to providing the extra training, supervision and support those enable individuals with significant barriers to employment to become successful employees. In social enterprises with an environmental mission, the social costs might be related to materials or technologies that are not yet mass-produced.

The results of researches allowed defining and systematizing the core characteristics of socially oriented enterprises:

1. The harmonized management system which includes values and strategic goals of social responsible activity. This statement characterizes the capabilities of enterprise to harmonize its activity with the strategic interests of stakeholders. The harmonization should assess the needs of staff, owners and investors.

2. The positive dynamics of key financial and economic performance of companies must take place over the past 3 years. It should be noted that the quantity of unprofitable enterprises increased in Ukraine for 2009-2011 (total level of unprofitability was 15% of GDP in 2009).

3. Implementation of social responsible policy in development of enterprises. Such policy must be aimed to the providing of mandatory social benefits and the additional social payments.

4. Meeting social needs of workers by improvement of life-limiting conditions, benefits of long-term housing loans, payment of financial assistance, getting health insurance, medical care and many other needs.

5. Development of infrastructure for charities and social enterprises. The social infrastructure of enterprise must support training, advice, information, mentoring and support-services that address needs in the areas of strategy development; general management (human resources, operations, financial and accounting, information and communications technologies, and other management areas), regulation; fundraising and funding. The social infrastructure can include medical centres, recreation and health centres, kindergartens, cultural institutions, housing and other social centres. In Ukraine only big comprehensive companies with employees more than 500 persons have modern social infrastructure.

6. Effectiveness of corporate policy in health and safety personnel, including comprehensive technical and organizational measures, appraisal jobs, training and testing of employees, reducing the number of accidents and fatalities and so on.

7. Training and staff development through a variety of training activities, including training as individual learning, training of various categories of staff, coaching, mentoring and other forms of training.

8. The financing of social projects related to the charity, sponsorship and patronage. Implementation of this component describes the development of philanthropic responsibility of the enterprise in regard to internal and external stakeholders.

9. Effective environmental policy of the company. The policy must be aimed to reduce its carbon footprint, improve recycling, reduce reliance on packaging, minimizing waste and improve efficiencies on finite natural resources in all of the company's operations and all departments.

These characteristics can be used in the process of identifying the levels of social orientation of enterprises. We used the A. Shyhverdiyeva and A. Seryakova's approach to determine the quality index of social investments. Thus, the quality index of social orientation of an enterprise (SOI_i) can be calculated by formula (1):

$$SOI_i = \left(\frac{1}{m} \cdot \sum_{i=1}^{m} X_{ij} \right) \cdot 100\% \qquad (1)$$

where X_{ij} – a boolean variable, which can be used to estimate the availability of any characteristics ($X_{ij} = 0$ if a characteristic available; $X_{ij} = 1$ if a characteristic is not available);

m – number of characteristics of social orientation of enterprise.

The calculation of degree of availability *j-th* characteristic in the statistical sample of companies can be made by formula (2):

$$SOI_j = \left(\frac{1}{n} \cdot \sum_{i=1}^{n} X_{ij} \right) \cdot 100\% \qquad (2)$$

The calculation of these indexes allows determining the appropriate level of social orientation of enterprise. As set out in the table 2, we propose three levels of social orientation of enterprises.

Table 2

Levels of social orientation of enterprises

Levels	The level of social orientation development	The characteristics of level of socially orientated enterprise
1	*Unsatisfactory* SOI_i [1–30], (%)	- Companies do not have the value priorities during the introduction of socially responsible activities; - Unsatisfactory financial and economic performance of company; - Ineffective social policy; - Reducing the incentive role of wages; - The ineffectiveness of social infrastructure; - Low efficiency of health and safety staff strategy; - Low quality of educational programs; - Low level of funding for social programs and projects; - Lack of the clearly formulated environmental policy in regard to reducing destructive environmental impact.
2	*Acceptable* SOI_i [31–60], (%)	- The formalized approach for defining the value priorities during the introduction of socially responsible activities; - Financial and economic stagnation of business development; - Lack of institutional support for social policy of company; - The functioning of company's social infrastructure; - Periodic attestation of workplaces, enforcement of the safety requirements; - Periodic training of human resources; - One-time financing of social projects, the lack of an effective system of long-term social programs and projects.
3	*Optimal* SOI_i [61–100], (%)	- Development and implementation of value priorities of socially responsible activities to ensure the harmonization of interests with the interests of stakeholders; - Positive dynamics of key financial and economic indicators; - Effective institutional provision of social policy; - An effective system of remuneration and compensation; - Development of social infrastructure; - Implementation of monitoring safety and health systems; - Implementation of competency models in the system of knowledge management; - Active participation of company in the financing of social projects which aim to meet the expectations of consumers, community development, environmental protection and others.

Thus, the process of development of values and principles in socially responsible management takes place in the Ukrainian enterprises. However, the formation of socially responsible management system is the privilege of big diversified companies. The characteristics of socially orientated enterprises which are proposed in this research display the methodological basis of impact of corporate social responsibility on company's reputation.

4. The simulation of the impact of corporate social responsibility on company's reputation.

The creation of conditions for socially-oriented management in the enterprises requires the researches of measuring the CSR impact on business reputation. Due to the fundamental scientific researches in the area of social responsibility, the business reputation is a valuable treasure. Some people make the argument that company's profit is one of the factors that gives a company a positive reputation. However, a company's reputation is often one of the factors that contributes to its ability to make profits on the first place. 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 who invest in social projects, such as development local communities, can expect a very positive return on this investment.

CSR evaluation process is one of the main conditions in effective simulation of impact of social indicators on business reputation's level. In economics, a model is a theoretical construct that represents economic processes by a set of variables and a set of logical and/or quantitative relationships. We identified a set of

quantitative and qualitative indicators which can estimate the level of socially-oriented business management (Table 3 about here).

Table 3

The quantitative and qualitative indicators of CSR evaluation process

Quantitative indicators		*Qualitative indicators*	
Marking	*Indicator*	Marking	*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		

The description of quality indicators is represented in Table 4.

We have analyzed key performance indicators of industrial enterprises in four areas of engineering (heavy engineering industry, chemical engineering, electrical engineering, mechanical engineering) in Eastern, Western and Central regions of Ukraine for 2004-2009. The complex and ambiguous dependency between different groups of quantitative and qualitative indicators was defined. In such way, we decided to use the methodology of fuzzy sets in the analysis of parameters that have indirect statistical relationships among the indicators of measuring of 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 CSRon 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, $i=1,\ldots,n;$ are thequantitative indicators and y_j, $j=1,\ldots,m$ are thequalitative 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 depended. 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 groups of variables x_i and y_j, which are the elements of correlation matrix K=|| kx_p,x_q ||:

$$kx_p,x_q=\text{cov}\ (x_p,x_q)/(D[x_p^2]*D[x_q^2]), \qquad (3)$$

where *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: $x_p=a*x_q+b$, або $y_p=c*y_q+d$.

Table 4

Setting thresholds for quality indicators of socially-oriented management

Indicators	Levels of qualitative values of indicators				
	Very low	Low	Middle	High	Very high
Social policy of enterprise	Limited <-0,5	Restrained -0,5-0	Supported 0-0,5	Motivated 0,5-0,8	Dynamical >0,8
Quality of corporate management system	Unsatisfactory <-0,5	Low -0,5-0	Middle 0-0,5	Satisfactory 0,5-0,8	High >0,8
Level of top management competence	<-0,5	-0,5-0	0-0,5	0,5-0,8	>0,8
System of training and staff development	Unsatisfactory <0	Satisfactory 0-0,5		Effective >0,5	
Level of employees' social protection	Unsatisfactory <-0,5	Low -0,5-0	Middle 0-0,5	Satisfactory 0,5-0,8	High >0,8
Corporate Culture	Unsatisfactory <-0,5	Low -0,5-0	Middle 0-0,5	Satisfactory 0,5-0,8	Optimal >0,8
Correspondence with legislation of Ukraine	Economical, social and environmental law violations <-0,5	Law violations take place, however there are strategies which aim to avoid risk and reduce harm to stakeholders The measures have been identified but their implementation is not made -0,5-0	The measures have been identified but their implementation is made slowly 0-0,5	The measures are being implemented 0,5-0,8	The company aims to make business on ethical basis >0,8
Regularly compilation of social accounting	Social accounting hasn't been drawn up <-0,5	Social accounting was being drawn up without international requirements -0,5-0	Social accounting was being drawn up once in three years 0-0,5	Social accounting was being drawn up once in two years 0,5-0,8	Social accounting was being drawn up every year >0,8
Business practices in relation to consumers	Unsatisfactory <-0,5	Unethical -0,5-0	Satisfactory 0-0,5	Honest 0,5-0,8	Ethical >0,8
Business practices in relation to suppliers and other business partners	Unsatisfactory <-0,5	Unethical -0,5-0	Satisfactory 0-0,5	Honest 0,5-0,8	Ethical >0,8
Regional employment rate	<-0,5	-0,5-0	0-0,5	0,5-0,8	>0,8
Implementation of environmental programs	<-0,5	-0,5-0	0-0,5	0,5-0,8	>0,8
Charity and sponsorship	The enterprise haven't been involved in charity	Charity programs aim to short-term	Implementation of charity and sponsorship	Implementation of strategic philanthropy	Facilitating the active participation of citizens and civil

	and sponsorship <-0,5	development 0,5-0	programs 0-0,5	projects 0,5-0,8	society organisations in building a better Ukraine >0,8
Informatization of social programs implementation	<-0,5	-0,5-0	0-0,5	0,5-0,8	>0,8
Participation in regional social development programs	The enterprise doesn't taken part in these programs (<0)	Participation depends on the purposes of regional programs 0-0,8			Permanent participation in regional programs (>0,8)

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

$$X \rightarrow f \in \{d1,\ldots,dl\} \quad (4)$$

$$Y \rightarrow g \in \{h1,\ldots,hk\}, \quad (5)$$

where – {d1,…,dl}, {h1,…,hk} – sets of *l* and *k* elements which are 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 ± *a*; 0,7 ± *b* must be defined. The factor model will be based on indicators which can be represented by 20-bit fuzzy number.

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

The membership function can be described as:

$$\mu_i^j(X,Y,Z), \quad (6)$$

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 quantitativeandqualitativeindicators ofsocially oriented management in the 16 enterprises were defined in different regions of Ukraine. The data for analysis of level of social orientation which were used in the process of social orientation defining are represented in Tables 5-6.

Due to the results of researches, four groups of variable sets: $x_2 = f_1 (x_3, x_{11})$, $x_{13} = f_2 (x_3, x_{11})$, $y_1 = f_3 (y_5)$, $y_2 = f_4 (y_8)$ and two levels of tab model were designed and demonstrated the correlation matrix and linear approximation between the dependences of variables: first level of tab model: $x_2 = f_1 (x_3, x_{11})$, $x_{13} = f_2 (x_3, x_{11})$, $y_1 = f_3 (y_5)$, $y_2 = f_4 (y_8)$; 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 4).

Table 5
Quantitative indicators of socially oriented management
(mechanical engineering enterprise, central region of Ukraine)

Indicators	Years				
	2006	2007	2008	2009	2010
Net profit	15,616.0	22, 662.0	23,866.0	17, 291.0	8,279.0
Net income	389.00	237.00	252.0	178.0	-11.0
Net Assets	4,171.00	4,312.00	4,475.00	4,645.00	4,602.00
Share ratio of assets	52.00	42.00	43.00	42.00	47.00
Share of fixed assets in total assets	6.00	10.00	11.00	9.00	7.00
Return on assets	7.20	2.75	3,42	2,27	0,14
Return on equity	9,33	5,49	5,84	3,98	-0,24
Profitability	2.00	1.00	1.00	1.00	0.00
Value Debt and equity	107.00	71.00	75.00	72.00	89.00
Gross profit margin	8.00	8.00	8.00	8.00	12.00
Liquidity	176.00	202.00	187	204	186
The number of employees	173	179	166	165	143
Labour productivity	90,26	126,38	143,77	104,79	57,89

Labour costs	2,343.00	3,678.00	4,608.0	4,311.0	3,152.0
Salary	1,128.61	1,712.29	2,400.00	2,245.31	1,641.67
Net revenue per employee	90.27	126.60	149.16	108.07	51.74
The share of voluntary social costs on social programs in net income	0,21	0,29	0,49	0,36	0,31
The share of social costs in total costs	3,98	4,02	5,07	4,96	3,85

Table 6

Qualitativeindicators ofsocially oriented management
(mechanical engineering enterprise, central region of Ukraine)

Indicators	Years				
	2006	2007	2008	2009	2010
Social policy of enterprise	0,4	0,5	0,7	0,6	0,6
Quality of corporate management system	0,45	0,3	0,6	0,7	0,8
Level of top management competence	0,5	0,8	0,7	0,7	0,6
System of training and staff development	0,6	0,4	0,6	0,5	0,5
Level of employees' social protection	0,5	0,3	0,2	0,2	0,3
Corporate Culture	0,2	-0,2	0,4	-0,3	0,1
Business practices in relation to consumers	0,7	0,6	0,6	0,5	0,5
Business practices in relation to suppliers and other business partners	0,5	0,7	0,8	0,2	0,4
Correspondence with legislation of Ukraine	0,5	0,4	0,4	0,2	0,3
Regularly compilation of social accounting	-0,5	-0,5	-0,5	-0,4	-0,1
Regional employment rate	0,008	0,056	0,015	0,02	0,025
Implementation of environmental programs	0,7	0,5	0,6	0,2	-0,2
Participation in regional social development programs	0,2	0,2	0,2	0,4	0,3
Charity and sponsorship	0,2	0,3	0,4	0,2	0,25
Informatization of social programs implementation	0.1	0,3	0,2	-0,1	-0,2

As shown in Figure 4, 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}).

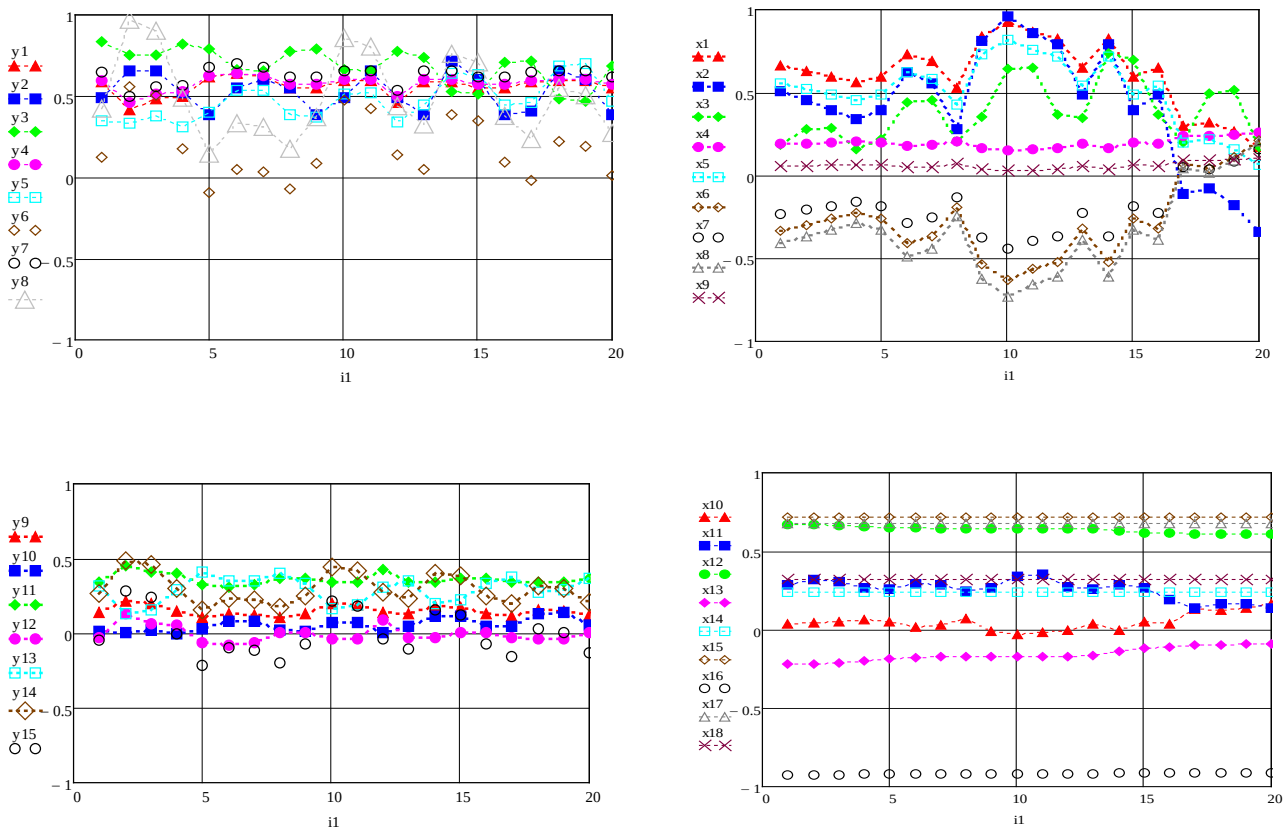


Figure 4. Impact coefficients of social responsibility on company's reputation

(mechanical engineering enterprise, central region of Ukraine)

The levels of companies' reputation are represented in Table 7.

Table 7

The levels of companies' reputation

It should be noted that there are only two enterprises of all which have the highest level of company's

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

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, development of corporate culture, business practices in relation to consumers and other measures.

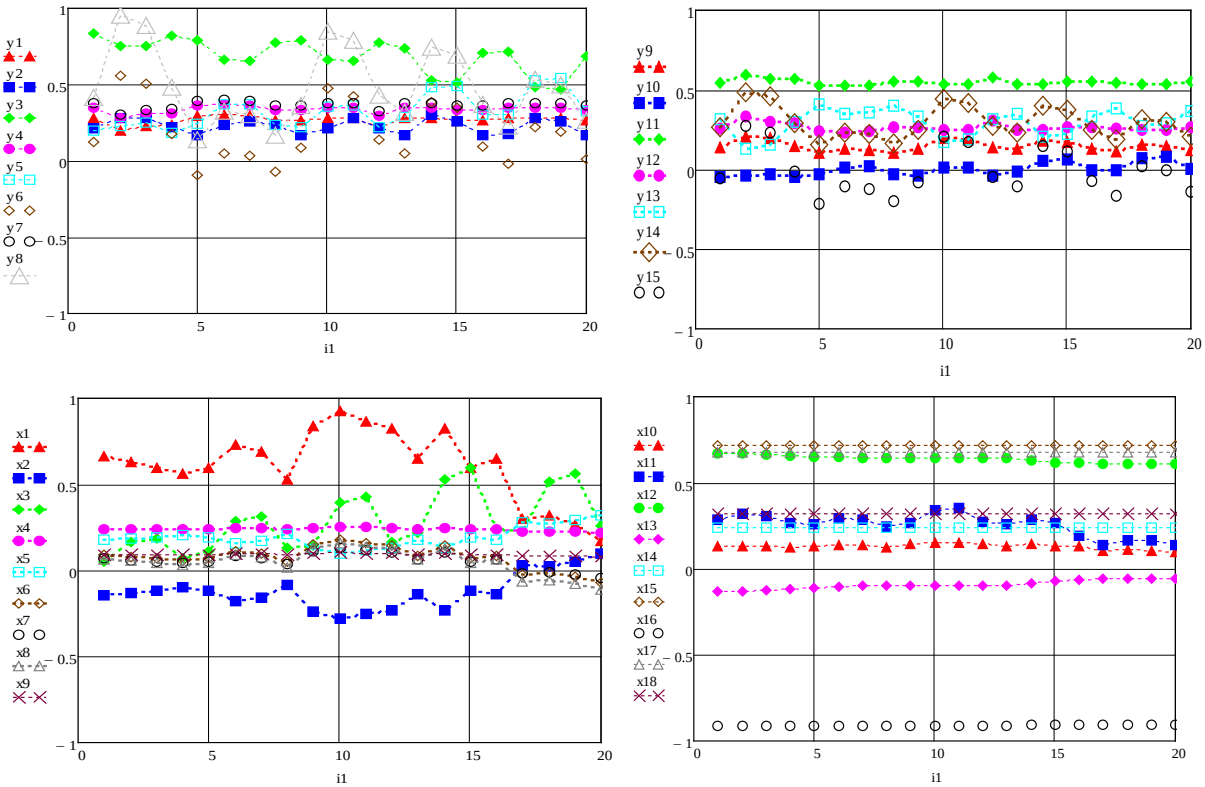


Figure 5. Forecastingofsatisfactorylevel of company's reputation based on the rising scenario

(mechanical engineering enterprise, central region of Ukraine)

In addition, the forecasting of the company's reputation change was made. The methods of Bartlett and Thompson were used in forecasting process of the company's reputation. The stabilization, falling and rising scenarios were offered for 2013-2015. Moreover, we proposed three 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 results of forecastingofsatisfactorylevel of company's reputation based on the rising scenario for the mechanical engineering enterprise are represented in Figure 5. The implementation of economic forecasting with mathematical methods allowed defining the strategies of socially-oriented development in mechanical engineering companies in the long-term period.

All things considered, there are key factors which make the significant impact for the 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 researches confirmed our hypothesis that impact of CSR programs on company's 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 developsandrequires the adoption of civilization Legislative Acts.Ukrainianlegislation provides the mandatory levy of social payments in budget, however, this process is accompanied by the lack of businessmotivation to realize social and ecological programs on a voluntary basis. In fact, the share of mandatory social payments is nearly 41,7% of enterprise' net. By doing this, the majority of employerstry to implement the 'shadow' wages. In addition, Ukrainian legislation providesthe minimum setof preferences which can increase business motivation to implement the socially oriented projects.

Despite of significant difficulties in the development of socially responsible management in Ukraine, we have identified the possible prospects of socially responsible business. The results of researches allowed defining key characteristics of socially oriented enterprises. These characteristics can be used in the process of identifying the levels of social orientation of enterprises. We identified a set of quantitative and qualitative indicators which can estimate the state of socially oriented business management. The results of the integral indicators calculating of socially oriented management allowed defining the coefficients which show the level of company's reputation.

The most important activities which impact on the 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. In this way the results of our researches confirmed our hypothesis that impact of CSR programs on company's business reputation should be evaluated with the use of economic-mathematical methods of fuzzy sets. In addition, the forecasting of the company's reputation change was made. The implementation of economic forecasting with mathematical methods allowed defining the strategies of socially-oriented development in mechanical engineering companies in the long-term period.

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