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Creating Competitive Strategies of Industrial Enterprises from the Standpoint of Corporate Social Responsibility



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Abstract. The relevance of the research lies in the development and strengthening of the institutions of the civil society amid globalization of the world economy, which determines the necessity of domestic business meeting the requirements of international standards and raises the issue of ensuring competitiveness of industrial enterprises to a qualitatively new level in terms of corporate social responsibility. The purpose for the research is to assess competitive strategies of companies in fuel and energy complex (hereinafter – FEC companies) in the framework of the new techno-economic paradigm with the growing importance of corporate social responsibility. Based on comparative analysis of the traditional theory of competitiveness of an enterprise and competitiveness in the framework of the concept “Industry 4.0”, it has been revealed that the global level of competition involves consideration of the company’s activities in the context of its socio-environmental environment focused on forming long-term competitive advantages. This became the rationale for creating the authors’ model of the impact of corporate social responsibility on company’s competitiveness, which indicates the influence of corporate social responsibility in five key options, providing additional opportunities for increasing company competitiveness. The authors present a modified method of identifying company’s competitive strategies in the aspect of importance of funding corporate social responsibility. The results of identification strategies of competitive behavior FEC companies have demonstrated that the integration of corporate social responsibility into company’s strategic management reinforces the importance of socially responsible business in the process of competition. The use of the author’s method of identifying competitive strategies helps identify the company’s strengths and weaknesses and, in contrast to the previously existing methods, consider the opportunities for financing corporate social responsibility with the purpose of forming competitive advantages for industrial enterprises. The research results can be used by regional and municipal authorities and business leaders when designing documents on strategic development, implementing modern concepts of social responsibility; by investors for assessing investment attractiveness of companies; and by educational institutions at various levels for implementing academic disciplines in the field of complex socio-economic analysis of enterprise activity. The promising area of further research is the development of a mechanism of providing competitiveness of enterprises with respect to corporate social responsibility in the framework of a new techno-economic paradigm.

Key words: socially responsible activity, corporate social responsibility, competitive behavior strategy, competitive advantages, enterprise competitiveness, investment, non-financial assets.

Amid neo-industrialization, the techno-economic paradigm is characterized by increased attention to building social progress and forming a relatively new phenomenon such as impact investing [11]. The concept of social progress is being actively developed not only in sociology but also in economics and public administration. The level of countries’ social development is characterized by the so-called social progress index – a composite indicator of the international research project “The Social Progress Imperative”, which measures countries’ achievements in terms of their social development [7]. The social progress index which does not take into account any cost parameters including GDP, is estimated using more than 50 indicators grouped in three categories taking into account human needs, foundations of their well-being and development opportunities. According to the

ranking of world countries by level of their social progress 2014, Russia ranks 80th out of 132. Such low rates were the consequence of poor quality of healthcare, personal security, personal rights and tolerance [4]. By the end of 2017, Russia rose to the 67th position out of 128 possible [7]. Responsible conduct of business, especially large corporate structures, is a mandatory precondition for the social progress of the society. The establishment of a new techno-economic paradigm which takes into account the changing foundations of economic development and the increasing tensions of competition inevitably determines the evolution of corporate social responsibility. Its area of responsibility includes new non-economic factors; the spatial aspect of social responsibility is expanded. Companies are now responsible not only for the results of production and economic activity, but also for other aspects such as environment, social programs, education, healthcare etc., i.e. they are forced to be socially responsible. The development and strengthening of civil society institutions amid globalization of the world economy demands that domestic business practices meet the requirements of international standards, which raises the issue of ensuring competitiveness of industrial enterprises of a qualitatively new level.

The evolution of the social responsibility of separate companies and the entire business environment goes through a series of development stages of development, starting from simple forms and ending with full integration of social responsibility into the activities of economic entities. The introduction of the principles of corporate social responsibility (the principles of consistency,

comprehensiveness, specificity, hierarchy, information security, etc.) [5, pp. 138–139] into the practice of Russian companies expands the range of opportunities for the formation of long-term competitive advantages within the philosophy of “Industry 4.0”. The following main factors in “Industry 4.0” development are distinguished [6, 21, 23]: digitalization, Internet of everything, additive technology, fully automated cloud storage.

Experts from industrialized countries, primarily the USA and Germany, believe that the Fourth industrial revolution will provide many advantages. However, negative changes are expected associated with the disappearance of blue-collar occupations, increased unemployment in developing countries and increased gender disparity. According to the report published for the 46th World Economic Forum in Davos, Switzerland [26], these changes have already begun since 2015.

Within the new industrial paradigm intellectual resources become the main resources of companies, changing competitive advantages [2, 16]. Future structural changes in the industry stimulated by the transition to the new techno-economic paradigm lead to the fact that amid neo-industrialization a major role in shaping the competitiveness of a modern company will belong to intellectual capital. There are empirical studies confirming the influence of intellectual capital on the company’s performance. Examples of these studies are presented in *Table 1*.

Despite the increasing role of intellectual resources, key decisions of owners, managers and investors are made based on company’s financial statements; this leads to undere-
stimation of risks and benefits related to

Table 1. Empirical studies of the impact of intellectual capital on company's performance

Authors	Research results	Sampling features
N. Bontis, W.C.C. Keow, S. Richardson, 2000 [18]	The link between intellectual capital and company's performance is significant and positive regardless of the industry.	107 Malaysian companies in various industries
M. Subramaniam, M.A. Youndt, 2005 [24]	A positive impact of intellectual capital on innovation activity	93 US companies
C.J. Huang, C.J. Liu, 2005 [22]	Non-linear positive dependence of capital returns on intellectual capital.	297 companies in Taiwan
E.V. Popov, M.V. Vlasov, 2006 [10]	A positive impact of investment in generation of new knowledge on enterprise's profitability.	Large enterprises of the Urals region
A.A. Bykova, M.A. Molodchik, 2011 [3]	Positive link between the value of intellectual capital and enterprise's revenue growth rate.	401 enterprises in Perm Krai

Table 2. Comparative analysis of the traditional theory of company's competitiveness and competitiveness in the framework of the concept "Industry 4.0"

Description	Traditional theory of company's competitiveness (resource-based method)	Competitiveness in the framework of the concept "Industry 4.0" (cognitive method)
Key competitive advantage	Material resources	Human (intellectual resources)
Reproductivity of key competitive advantage	Reproductive (copied) competitive advantages	Unique company's competences which are impossible to fully reproduce
Competitive analysis of a company	Considering the company's position in the industry (M. Porter's five forces model)	Considering the company in the context of the social and ecological environmental (surroundings)
Primary addressee of measures aimed at increasing competitiveness	Consumers, suppliers, partners, investors	Stakeholders in the broad context
Company's main goal	Maximize owners' wealth by company's appreciation	Increase the value for all company's stakeholders
Level of implementation of competition	Regional, global to a lesser extent	Mainly global
Time horizon of activities to improve competitiveness	Tactic (staying ahead of current competitors, creating barriers to industry access)	Strategic (creating long-term advantages)

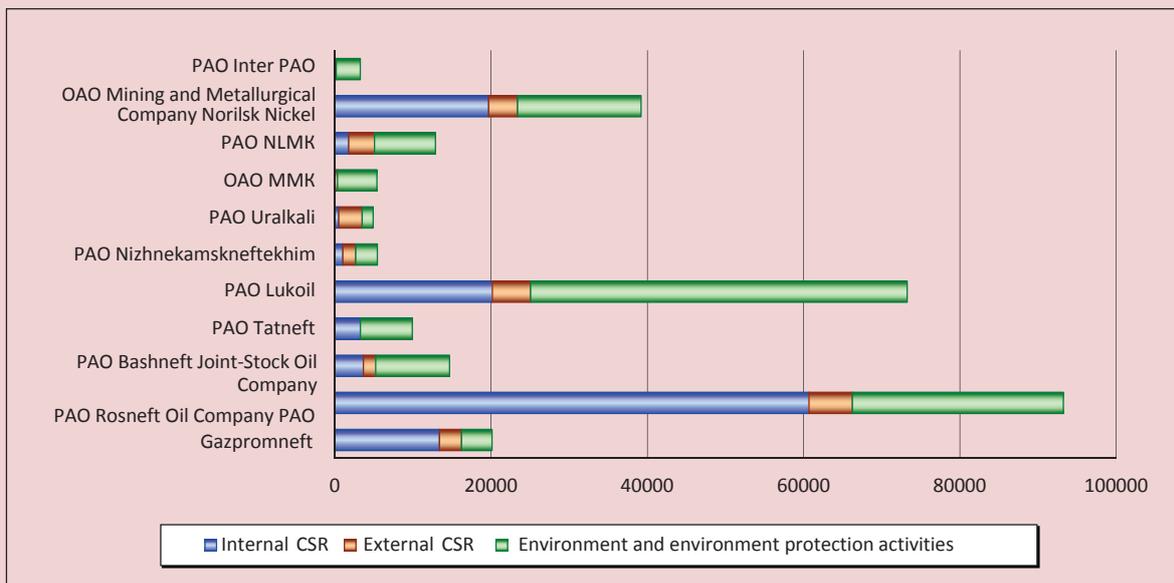
intellectual capital. Thus, the traditional way of generating competitive advantages is replaced with the cognitive one. The traditional approach is associated with the use of material resources while the cognitive one primarily focuses on using competences and intellectual potential of the company. The results of comparative analysis of the traditional theory of company's competitiveness and competitiveness in the framework of the concept "Industry 4.0" are reflected in *Table 2*.

Global competition implies consideration of the company's activities in the context of the socio-ecological environment based on

the increasing importance of intangible resources; it aims to create long-term competitive advantages. This is evidenced by the results of research of foreign authors. The research revealed that intangible assets serve as a mediator in relation to the social and financial efficiency as an enterprise's competitive advantage.

The research objects were 599 industrial companies. As a result, we confirmed the hypothesis that intangible assets such as intellectual capital, reputation and culture have a positive impact on financial results. The authors point that there is no direct link

Figure 1. Companies' cost of CSR activities in 2015, million rubles



between corporate social performance and company's financial performance, describing it as mediated, regulated by company's intangible assets [25].

The concept of corporate social responsibility (CSR) has undergone significant transformations: from the normative contradictory definition of H. Bowen – the “father of corporate social responsibility”, defining the social responsibility of a businessman as “the implementation of policy, decision making or conduct which would be desirable from the standpoint of goals and values of the society” [19], and ending with the core universal standard ISO26000:2010 “Guidance on social responsibility”.

Despite the fact that in Russia, CSR is in its infancy, in recent years, public interest to assessing corporate social responsibility of domestic enterprises has increased. This is explained as follows: more and more Russian companies enter international markets where

they face the fact that at the global level there are standards of social responsibility for economic entities. The costs of financing activities promoting corporate social responsibility of domestic industrial companies, which are the carriers of the best practices, are presented in *Figure 1*.

The distribution of funds reflects company's CSR priorities. For example, PJSC LUKOIL, PAO Bashneft Joint-Stock Oil Company, and PAO NLMK Group prioritize costs of financing activities aimed at protecting the environment. PAO Rosneft Oil Company, OAO Mining and Metallurgical Company Norilsk Nickel, PAO Gazpromneft give preference to measures of internal CSR, and PAO Uralkali – aims to develop the region where it operates – external CSR.

The data from Figure 1 highlight companies of the fuel and energy complex as leaders in financing CSR activities. We identified the distinguishing features of running a socially

responsible business (hereinafter SRB) from the standpoint of sustainable development of a business entity. The essence of the SRB concept should be considered through social, environmental, economic, and political aspects [13] accounting for interaction of all stakeholders. The structure of SRB including production, management and investment components should be analyzed at micro-, meso-, macro - and mega-levels.

- At the micro-level, socially responsible business includes economic efficiency of enterprise's activity, considering the quality of products and competence of labor resources, and clearly realizes its responsibility to its employees.

- At the meso-level (sectoral level), partnership relations are established based on analysis of external and internal environmental factors.

- At the macro-level, socio-economic relations are formed: they concern the conduct of business at the state level when interacting with various business structures and public organizations.

- At the mega-level, conditions for creating transnational corporations are created, which increases the country's competitiveness at the international level.

At the same time, CSR in Russia is complicated by the volatility of the national economy and imperfect regulatory framework regulating socio-economic relations. In particular, the problem resides in public reporting and slow progress from free reporting to systematic reporting (including international standards), as well as in changing environmental reporting to comprehensive reporting in the sphere of sustainable development [15].

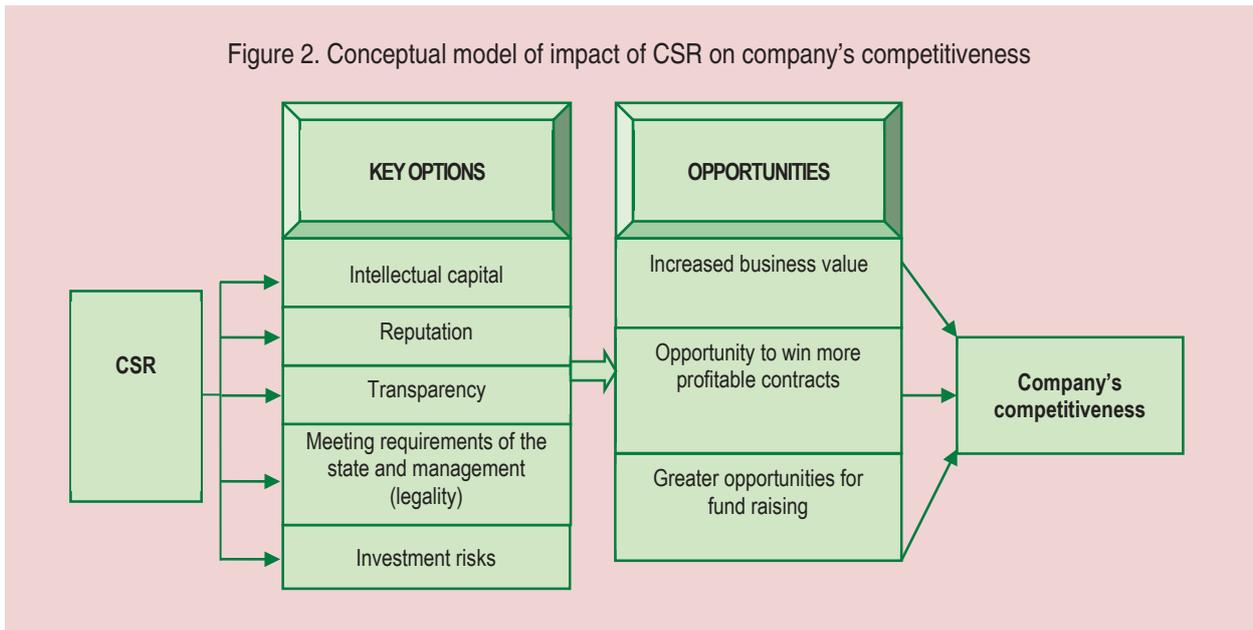
It should be noted that CSR provides the evolutionary transition from socially responsible investing to impact investing, which involves solving both social and environmental issues through new investment tools in investments areas [14].

The role of CSR and its impact on the company's performance is quite ambiguous. American experts express contradictory views on the impact of CSR on competitiveness [13]. Some authors believe that CSR tools will undoubtedly have a positive effect on the enterprise's techno-economic indicators, others hold the opposite opinion. The third group of experts relies on the fact that social activities are managed by departments and offices of one type, while industrial, economic and technical tasks are regulated by other units. Moreover, the goals and objectives of these units should not interfere [17]. It is worth noting that the disagreements between researchers are due to the fact that the concept of "competitiveness" in modern conditions loses its purely economic value and acquires a broader meaning reflecting the impact of business on the civil society.

We attempted to determine the effect of social responsibility on company's competitiveness through designing a conceptual model of the impact of corporate social responsibility on competitiveness (*Fig. 2*).

The model presents five key features of the impact of corporate social responsibility: intellectual capital, reputation, transparency, legality and investment risks, which creates additional opportunities for creating competitive advantages with the aim of increasing company's competitiveness. However, it is necessary to mind that the costs of CSR are ambivalent since their influence

Figure 2. Conceptual model of impact of CSR on company's competitiveness



is indirect and recoverability of investments in CSR can only be reached during a prolonged period which defines long-term competitive advantages.

The formation of company's competitive advantages from the position of CSR creates additional opportunities for the development of the strategic potential:

- strengthening company's position in socio-economic issues to ensure company's image;
- increased productivity and efficiency, innovative activity, etc.;
- management of financial and non-financial risks in terms of CSR;
- attracting qualified personnel, ensuring their professional growth, introduction of material and moral incentives;
- increasing market share and opportunities to attract new consumers;
- creating sustainable partnerships with regional bodies, local communities, trade unions, civil institutions, the media;

– implementation of best practices demonstrating great civil and social responsibility to the state and the society [1, 8, 12].

The comparison of the above mentioned advantages offered by the use of CSR and components of strategic potential affecting company's competitiveness indicates that they largely coincide or interfere. However, for social costs in realization of opportunities provided in CSR to fully become an effective investment they need to be actively promoted by the state as business social projects affect both enterprise's performance indicators and the society as a whole. Only the state along with businesses can bring social focus to the economy; that is why the state should stimulate, regulate, and determine the vector of priorities for social investment. Thus, these features are the basis for the formation of a new strategy of enterprise competitiveness in the framework of corporate social responsibility.

To assess the increment of company's competitive advantages and form the strategy of competitive behavior we propose a CSR competitive index ($I_{C.CSR}$). It is an integrated indicator presented as the geometric mean of the product of reasoned metrics. The indicators reflect the areas of GRI ("Global reporting initiative") and, in turn, are comprised of three metrics selected using principal component analysis. The metrics of the economic indicator are as follows: revenues (R), profit (P), market capitalization (MC). The metrics of the social indicator are as follows: cost of personnel training and development (PT), work safety and industrial security (WS), and social package (SP). The metrics of the environmental indicator are as follows: cost of atmosphere protection (AP), cost of water protection (WP), cost of land protection (LP).

We present local indices in dynamics, which reflects the change in metric values:

$$I_x = \frac{metric(X)}{metric(X_0)} \quad (1),$$

where I_x – index of change of the chosen metric (X) of the indicator;

metric (X) – the chosen metric of the indicator;

metric (X_0) – the selected metric of the indicator in the previous period;

(X) metric can be any metric of the proposed economic (P, R, MC), social (PT, WS, SP) and environmental (AP, WP, LP) indicators.

The calculation formula for CSR competitive index ($I_{C.CSR}$) is the geometric mean of the product of local indices of economic, social and environmental performance, which is the most "sensitive" to the value of the indicators used in its calculation:

$$I_{C.CSR} = \sqrt[3]{I_{env} \times I_s \times I_{ec}} \quad (2)$$

An example is companies occupying leading positions in the country's economy. Particularly important among them are companies of the fuel and energy complex (FEC) which are among the leaders in CSR. Table 3 presents the values of $I_{C.CSR}$ of leading fuel and energy companies.

To describe competitive strategies we used the method of competitive strategy analysis characterized by high information content and visual expression [9, 20]. According to this method, the enterprise uses all of its efforts (I) to resist three types of external effects: stress (S – stress-tolerant), violations (R – ruderal), and competitors (C – competitive):

$$I_s + I_c + I_r = 100\% \quad (3)$$

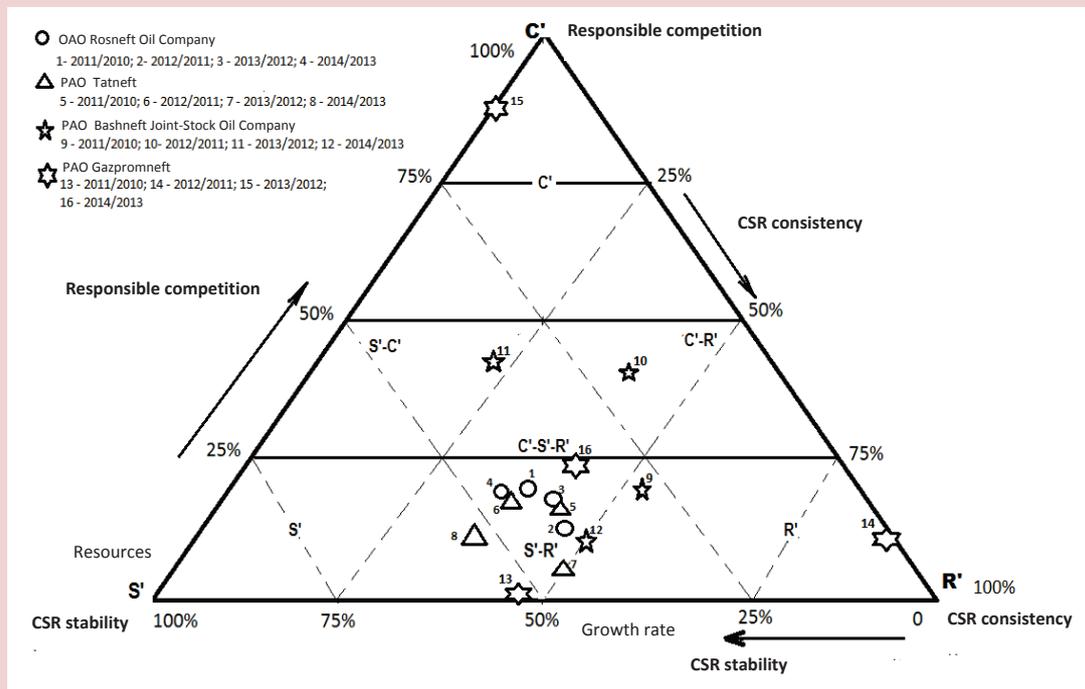
where I – intensity of efforts to implement S, R and C.

Time series of annual values of $I_{C.CSR}$ served as initial data for constructing the diagram (Fig. 3).

Table 3. CSR competitive index

Companies	2011/2010	2012/2011	2013/2012	2014/2013	2015/2014
PAO Gazpromneft	-	0.966	4.066	1.485	1.493
OAO Rosneft Oil Company	1.353	1.157	1.290	1.320	0.949
PAO Tatneft	1.289	1.297	0.942	1.210	0.609
PAO Bashneft Joint-Stock Oil Company	1.384	2.141	2.201	1.111	1.575

Figure 3. Classification chart of competitive strategies of fuel and energy sector in 2010–2015



A relative increment of $I_{C.CSR}$ is calculated as the second index (%).

$$I'_{C.CSR} = \frac{100(I_{C.CSR} - I_{C.CSR-1})}{I_{C.CSR-1}}, \quad (4)$$

where $I_{C.CSR-1}$ – value of CSR competitive index of the previous year¹.

On order to analyze the competitive behavior of companies in terms of socially responsible activities, we propose amending the classification structure of strategies for competitive behavior which would reflect the performance of their positions relative to each other focusing on the characteristics of socially responsible behavior as an element of both external and internal environment

¹ Due to the absence of the data for 2016, the value of the last range (2015–2014) is not reflected since the increment is determined by two values (see Fig. 3).

of the company. Identification of the proposed strategies for competitive behavior of the companies in CSR and the variety of combinations of its secondary strategies are presented in *Table 4*.

The figure (*Fig. 3*) demonstrates the distribution of values of the CSR competitive index in the dynamics for enterprises of PAO Bashneft Joint-Stock Oil Company, PAO Tatneft, OAO Rosneft Oil Company, PAO Gazpromneft.

The scale of the figure corresponds to the range of annual values of $I_{C.CSR}$ and its increment $I'_{C.CSR}$. The obtained index values and its increment are measured on respective axes of the chart; the intersection of these values defines the location of the analyzed companies according to their competitive behavior strategy in terms of C'R'.

Table 4. Identification of strategies for competitive behavior of companies in CSR

Traditional methodology		Modified methodology	
Strategy	Strategy for companies' competitive behavior	Strategy	Strategy for companies' competitive behavior in CSR
R (ruderals)	Monopoly on production and sale of innovative goods or significant outrunning of competitors in both development of new products and their market launch. Such a strategy helps obtain high return on invested capital even with a small market share.	R' (CSR consistency)	Ensuring the effectiveness of the implementation of CSR functions and directions based on the principles of integrity, accountability, targeting, and transparency.
C (competitors)	Effective mechanisms of resource locking and production intensification. Finding ways of producing a unit of commodity consuming less labor and materials.	C' (responsible competition)	Prevention of violation of the rights of other economic entities or unfair competition.
S (stress-tolerants)	They survive because they avoid frontal price competition by creating their own unique niche inaccessible to others. They are adapted to existing in conditions of considerable resource scarcity.	S' (CSR stability)	To preserve and maintain social stability and economic security.
C-R (competitors-ruderals)	Adapting to markets with low impact of stress and competition restricted to medium-intensive violations.	C'-R' (responsible-consistent competition)	Adapting to markets with low stability in the implementation of CSR.
R-S (ruderals-stress-tolerants)	Adapting to non-productive medium-violated markets.	R'-S' (consistent-stable competition)	Adapting to markets with a relatively low degree of responsibility in CSR.
C-S (competitors-stress-tolerants)	Adapting to relatively violated markets with medium-intensive stresses.	C'-S' (responsible-stable competition)	Adapting to markets, implementing non-systematic events in CSR.
C-S-R (competitors-stress-tolerants-ruderals)	Adapting to markets where the competition is limited to medium-intensive stress and violation.	C'-S'-R' (responsible-consistent-stable competition)	Adapting to markets with responsible competition restricted to medium-intensive stability and consistency.

According to the figure, almost all enterprises mainly implement the R'-S' strategy, thereby showing resistance to stress, i.e. they use their monopoly on production. Companies adapt to markets with a relatively low degree of responsibility in CSR, in other words, they demonstrate consistently moderate social activity.

According to the chart, this is most evident for OAO Rosneft Oil Company. The implementation of this strategy for companies of OAO Rosneft Oil Company takes place in terms of consistency and stability in spite of changing economic conditions. The low rate of implementation of investment programs explains the accumulation of points mainly in the lower part of the chart closer to the R'-S' axis. For example, for lack of data on expenditures on environmental protection for PAO Tatneft, its competitive strategy tends to moderate social stability. This presumably indicates insufficient financial resources for the implementation of the company's non-core activities.

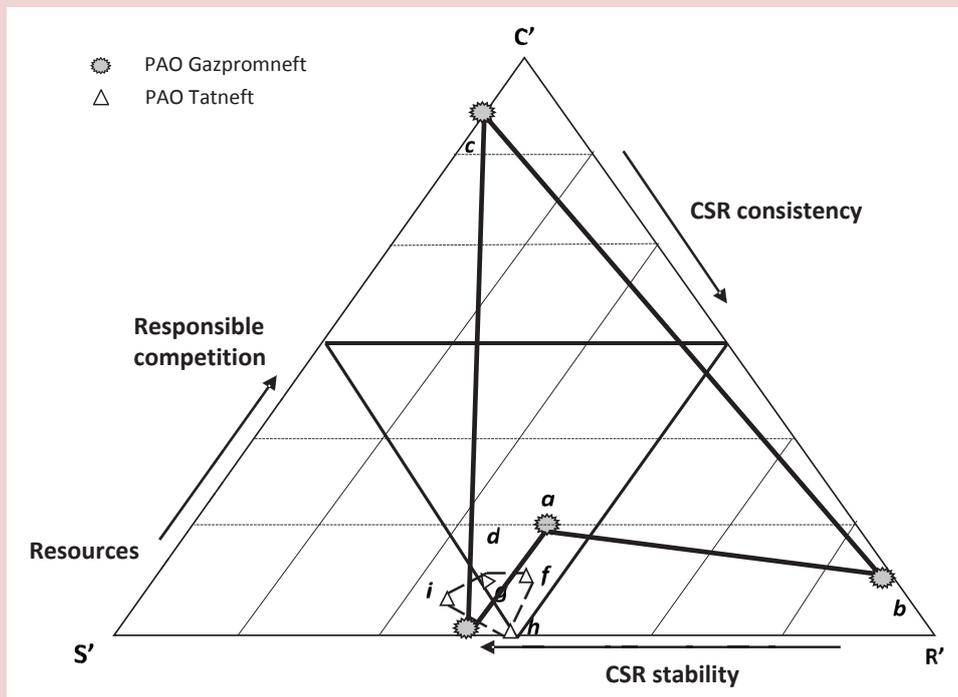
In 2011, according to the chart, PAO Gazpromneft was implementing a systematic CSR strategy (point 14) characterized by high instability in the external environment compensating it by intense activity in the company's internal environment. It should be noted that this strategy carries high risks. For example, the company had to pay heavy fines for violating environmental management; the company's activities probably were carried out bypassing environmental standards, however, it made it possible to leave many competitors behind. In 2013, PAO Gazprom implemented its C' strategy – responsible competition (point 15), having effective mechanisms for locking

resources and production intensification. Thus, in the framework of the Year of Ecology declared by the company, 300 diverse environmental activities were implemented, which exceeds the average number of such events and initiatives 10 times compared to the previous year. PAO Bashneft Joint-Stock Oil Company in 2011–2013 (points 10, 11) demonstrated socially responsible competitive behavior characterized by medium-intensive stability and consistency, i.e., the wish to achieve a responsible competitive position. The most successful socially responsible competitors will to the right of the dashed lines, least successful – to the left.

The difficulty in plotting the chart of identification of competitive strategies of fuel and energy companies lies in the heterogeneity of data contained in company's non-financial company reports. The modified methodology for identifying competitive strategy of an industrial enterprise helps assess the competitive status of an economic entity in dynamics and make necessary changes to the structure of the company's investment policy taking into account both social and environmental sphere.

Considering the figure for identifying competitive strategies of companies of PAO Tatneft and PAO Gazpromneft during 2010–2014 (trajectories *abcd* and *gghi* (Fig. 4), there are two diametrically opposed strategies of competitive behavior. PAO Tatneft mainly implements the S'R' sub-strategy. All points, *gghi*, reflecting the position of PAO Tatneft in the chart are concentrated in a certain zone which occupies a small area. This confirms the fact that the company does not significantly change its competitive strategy for 2010–2015 in the part of socially responsible behavior.

Figure 4. Trajectory of change in model competitive behavior of fuel and energy companies*



* PAO Gazpromneft: a – 2011/2010; b – 2012/2011; c – 2013/2012; d – 2014/2013. PAO Tatneft: f – 2011/2010; g – 2012/2011; h – 2013/2012; i – 2014/2013.

Regarding PAO Gazpromneft, it is fair to say that the *abcd* trajectory occupies a significant part of the graph $S'C'R'$ on the right. This suggests that the company is dramatically changing its competitive behavior within the framework of socially responsible behavior of a business, in particular, this concerns measures for environmental protection, as noted earlier. This emphasizes the growing importance of real investment in the company's non-tangible assets.

Thus, using the modified method of identifying the competitive strategy of an industrial enterprise in the framework of their socially responsible behavior, we can determine its weak and strong points and assess the competitive status of the economic entity

in dynamics. Identification of competitive strategies of leading fuel and energy companies in the context of CSR financing, which takes into account the reaction of the company's internal environment to the impact of environmental factors, makes it possible to position companies relative to each other.

The establishment of a new techno-economic paradigm and "Industry 4.0" necessitates the formation of company's competitive advantages based on its intellectual capital in the framework of socio-environmental responsible activities, which in the long term becomes the foundation for an enterprise's sustainable development. The developed conceptual model of the impact of CSR on company's competitiveness

demonstrates the influence of CSR on five key options, creating additional opportunities for creating competitive advantages. The ambivalent nature of investing in CSR implies only a long-term repayment, which defines long-term competitive advantages. Integration of CSR in the company's strategic management reinforces the importance of socially responsible business in the process of competition.

The obtained results can be used by regional and municipal authorities and heads of companies implementing the modern concept of social responsibility, as legitimate elements of the mechanism of competitiveness in the context of corporate social responsibility, as

well as control and analytical tools to justify the actual behavior of economic entities based on the natural laws of competition. Analysis of retrospective data in dynamics helps assess the company's position against competitors with the purpose of amending companies' development strategy. For example, theoretical and methodological provisions of the research were applied in the practice of PAO Gazprom in the development of proposals aimed at implementation of the plan for the socio-economic development of PAO Gazprom for three years. In the interests of investors, the research results can be used as ranking tools to rank companies according to the degree of their investment attractiveness.

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