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Research

PUBLICATION OF REPORTING OF METALLURGICAL COMPANIES IN CONTEXT OF THE CONCEPT OF CORPORATE SUSTAINABLE DEVELOPMENT

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ABSTRACT

Modern economy is a system that affects the change in social welfare, which makes new demands to efficiency and effectiveness of large companies. Results of corporate sustainable development, in particular in environment-exploiting industries, must meet new requirements and be reflected in corporate reporting. The article analyses non-financial reporting of world's largest metallurgical companies. It was revealed that absence of a unified system of indicators in case if requirements of regulatory bodies are not necessary, causes incompleteness of information. Regularities in corporate reporting are revealed in the paper, the necessity of completing the system of indicators taking into account specifics of mining and metallurgical companies is proved; directions of perfection of formation of non-financial reporting of metallurgical companies are offered. Methods of system analysis of activity of metallurgical companies, comparative analysis of their effectiveness in the field of corporate sustainable development, as well as the published non-financial reporting, were applied.

INTRODUCTION

Sustainable development is a modern concept that unites social, environmental and economic aspects of life in interests of present and future generations. To large extent, such development is determined by results of operation of large companies in environment-exploiting sectors, especially companies of the mineral and raw materials complex, whose specific activity is characterized by an increased negative impact onto environment, hard working conditions of production personnel, city-forming, budget-forming and social significance (Ryman, *et al*., 2007).

Up to date, more and more companies around the world are implementing ecologically and socially responsible approaches to doing business. This is due to globalization of the economy, integration of companies into global economic space, functioning in international financial market, acquisition of assets abroad (Sergeev and Ponomarenko, 2011).

In the course of their activities, companies are faced with ever-increasing expectations of stakeholders that require clear, consistent and transparent information on key performance results, including in environmental and social areas (Esteves and Vanclay, 2009).

In addition, despite the fact that publication of non-financial reporting, including carbon-related, is not yet a determining factor for attracting investments, some companies have already encountered investors' demands for providing information on social results of their activities, assessing environmental performance of investment projects and greenhouse gases emissions (Strezov, *et al*., 2013).

All this determines the relevance of issues of content research and quality of non-financial reporting.

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LITERATURE REVIEW

Based The classic definition of sustainable development was given by the United Nations Commission on Environment and Development: "Development that meets the needs of the present generation, but does not compromise the ability of future generations to meet their own needs" (Report of the World Commission on Environment and Development: Our Common Future). The rationality in management of trans-generational capital (the capital of all generations, including future ones) is formulated as the main principle of sustainable development, since use of a resource, primarily of natural capital, by each previous generation deprives future generations of the possibility to use the same resource to some extent (Sergeev and Lapochkova, 2009).

Until the mid-90's, the focus of attention was shifted onto problem of sustainable development at the macro level which is being updated in the current globalization environment and is receiving new opportunities for solution. Studies of sustainable development issues, development and implementation of tools applicable for different levels were done by Elkington, 1997; Hartwick, 1977; Page, 1988; Turner, 1993, and others.

Hartwick, 1977 in the second half of the 1970s proved that society should invest in rental income from exploitation of non-renewable resources into reproducible capital, rather than consuming by the current generation. Solow, 1986 stressed that this approach implies storage of total capital "intact" and ensures achievement of sustainability in use of resources. Developing these ideas, (Page, 1988) suggested that each generation should compensate any irretrievable reduction of resources for future generations.

In the early 1990s, (Turner, 1993) differentiated levels of sustainability of development into four categories: Very weak, weak, strong, very strong. The Hartwick rule represents the weakest stability (flexibility), when replacement of used natural resources by man-made capital is theoretically unlimited. In determining weak stability in the studies of Hamilton and Atkinson, 2006, it was shown that substitution of natural capital by artificial is limited and admissible up to some critical value. The London school also maintains positions of strong stability-the replacement of the consumed part of natural capital is allowed only by another natural resource, but not by man-made capital. Very strong sustainability of development is justified in works by (Georgescu-Roegen, 1975; Daly, *et al*., 2000), who are convinced that substitution of natural capital is unacceptable.

A conceptual solution to the problem of sustainable development at the micro level was proposed in 1994, in the "triple bottom line" model (triple bottom line; TBL or 3BL) (Elkington, 1997). In this model, the company's activity is viewed from the point of view of social welfare in ecological, economic and social aspects and the idea of the "Triple-Win Strategy" is formed.

Since the 90's, numerous studies have been carried out to justify methods for determining results, selecting sustainable development management instruments, and developing non-financial reporting by international organizations such as the International Integrated Reporting Council, the Global Reporting Initiative, the KPMG, the Ernst and Young, the Price water house Coopers. Despite intensive research, there were no uniform requirements for composition of reporting and the system of non-financial reporting indicators, which reduces the quality of presentation of results, and quality of non-financial information as such (Ernst and Young, 2016; Costin, 2013).

MATERIALS AND METHODS OF RESEARCH

On Theoretical basis of the research was made by fundamental scientific works in the field of sustainable development, analytical reports of consulting companies, as well as materials of the Global Reporting Initiative including non-financial reporting manual GRI G4.

Methods of system analysis of activity of metallurgical companies were used in the work in order to reveal key features of their functioning.

Based on collection and consolidation of analytical information on largest companies in metallurgical sector, a comparative analysis of quality of non-financial reporting was carried out, and problems in reporting practice were detected.

The list of companies included into sampling for purposes of the study is presented in Table 1.

RESULTS AND DISCUSSION

Principles of corporate sustainable development require transparency of company's activities and publication of their non-financial reporting to reflect performance in economic, environmental and social aspects.

The most recognized and applicable method of non-financial reporting in the world is the Global Reporting Initiative (GRI G4, 2015a; GRI G4, 2015b) which defines key principles of reporting and

disclosure requirements. However, analysis of non-financial reporting of world mining companies revealed a number of its shortcomings (non-compliance with principles of GRI G4).

Table 2 presents results of the analysis of non-financial reports of metallurgical holdings published in 2008 to 2016.

Activity of metallurgical companies is characterized by the number of features (Pikalova and Smirnova, 2015) which stipulate increased requirements for companies in accordance with the concept of corporate sustainable development Table 3.

Among features of functioning of metallurgical companies, the following should be specially emphasized:

1. Complex organizational and management

Table 1. The largest metallurgical holdings

The Company	The Country	Availability of social report/report on sustainable development (compliance of the report with GRI recommendations)								
		2008	2009	2010	2011	2012	2013	2014	2015	2016
Arcelor Mittal	Luxembourg	-	-	-	GRI G3.1	GRI G3.1	GRI G3.1	-	-	-
Nippon Steel and Sumitomo Metal Corporation	Japan	-	-	-	-	-	GRI 3.0	GRI 4.0	GRI 4.0	GRI 4.0
Hebei Steel Group	China	-	-	-	-	-	-	-	-	-
Baosteel Group	China	GRI	GRI	GRI	GRI	GRI	GRI	GRI 3.0	-	-
Wuhan Steel Group	China	-	-	-	GRI; CASS-CSR	GRI; CASS-CSR	GRI; CASS-CSR;	-	-	-
POSCO	South Korea	GRI	GRI	GRI	GRI G3.1	AA1000	AA1000			
Shagang Group	China	-	-	-	-	-	-	-	-	-
Ansteel Group	China	GRI	GRI	GRI; CASS-CSR; ISO 26000	GRI; CASS-CSR; ISO 26000	-	-	-	-	-
Shougang Group	China	-	-	-	-	-	-	-	-	-
JFE	Japan	ESR	ESR	ESRSPR	GRI 3.0	GRI 3.0	GRI 3.0	GRI: G4	-	-
Compiled according to reporting of metallurgical companies										

Table 2. Analysis of compliance of published non-financial reports of metallurgical holdings to GRI G4 principles

Principle	The result of analysis of the published non-financial report of metallurgical companies
Comparability	Comparison of information on various companies is difficult. It also causes some difficulties comparing performance of companies dynamically due to irregularity of publication of reporting and changing the format of provision of information.
Accuracy	The information presented in reporting does not allow to comprehensively estimate results of companies' activities, a number of data is not disclosed or disclosed partially. For example, most companies do not fully reflect the supply chain. Reporting is published throughout the integrated group without disclosing information on companies that are a part of it. The lack of reporting indicators reflecting industrial characteristics of mining companies.
Timeliness	Most companies publish reports irregularly
Clarity	The form of providing information is understandable, there are explanations and graphic material
Reliability Balance	Despite positive results presented by companies in reporting, results of inspections of regulatory bodies indicate problems in environmental and social spheres.
Note: One of key areas for development of non-financial reporting by companies operating in natural resource industries is consideration of specific features of their functioning.	

structure of metallurgical holdings which requires disclosure of information on aspects of corporate sustainable development (economy, ecology, social environment) throughout the integrated group as a whole as well as detailing this information for each company that is part of the holding.

2. Functioning of metallurgical industry is based on extraction and processing of non-renewable minerals what determines the need to integrate principles of rational nature management into activities of companies. In its turn, non-financial reports of companies in mining and metallurgical industries should include additional specific indicators that reflect the level of rational use of raw mineral resources.

Table 4 presents indexes that are proposed to be disclosed at the level of the whole group, as well as key companies (mining, processing and steel-producing) divisions of metallurgical holdings.

These indexes should additionally be included by metallurgical companies into published reports in addition to indexes recommended by methodology for formation of non-financial reporting-the Global Reporting Initiative GRI G4.

Table 3. Features of metallurgical companies functioning

Economic Features	− High capital and resource intensity of operating activities; − High barriers of entry and exit from the market; − A high share of energy resources in the cost of production; − Reduction of the period of physical deterioration of equipment due to aggressive environments; − Depletion of the resource base and depreciation of mineral and raw materials assets; − Increased risks, including specific ones; − High-concentrated markets
Ecologic Features	− Increased requirements for environmental safety; − High probability of occurrence of accidents and man-made disasters; − Large volume of production and consumption wastes; − Environmental problems in the region of presence of the company
Social Features	− High requirements for training, preparation and retraining of staff; − Harmful to health and traumatic production; − City-forming position of the company; − Budget-forming position of the company;
Organizational Features	− Fairly stable ties with buyers and suppliers in connection with use of products for subsequent redistribution; − Increased requirements for openness of doing business; − Holding structure of management; − A complex management system, a large number of management links

Table 4. Indexes reflecting specifics of mining and metallurgical holdings

Index title	**The level in report of which the index is disclosed**
The volume of expenses for geological survey	Integrated group, mining companies
Increase of balance reserves as a result of geological survey, transfer of conditionally profitable and unprofitable reserves to profitable	Integrated group, mining companies
Increase in mining capacities	Integrated group, mining companies
Increase in processing capacities	Integrated group, processing companies
Increase in steel-making capacity	Integrated group, steel-making companies
Provision of processing capacities with own raw materials	Integrated group, processing companies
Provision of steel-making capacities with own raw materials	Integrated group, steel-making companies
Dissipation rate	Mining companies
Mining losses rate	Mining companies
The average content of a useful component in ore entering a factory	Mining companies
The average content of a useful component in a finished product (by product types)	Integrated group, processing, steel-making companies
The ratio between expenditures onto environmental management and environmental protective measures, and revenues	Integrated group, mining processing, steel-making companies

CONCLUSION

Based on the mentioned above, we can draw following conclusions:

1. Analysis of published non-financial reports of companies of mineral and raw materials complex (metallurgical industry) revealed following problems: Irregularity in disclosure of information on performance in the field of corporate sustainable development by companies, the difficulty of comparing performance of various companies in the field of corporate sustainable development among themselves, concealing negative performance of companies, a small number of disclosed indexes.

2. Indicators that a company discloses in non-financial report should be supplemented with a block of indexes reflecting the level of rational use of the mineral resource base.

3. For successful development of non-financial reporting of mining and metallurgical companies, it is necessary to detail information provided and disclosed indexes for individual companies in the integrated group.

Further development of non-financial reporting should be aimed at unifying methods of its compilation for improvement of comparability of the information provided; accounting of industrial affiliation of companies as well as development of public tools to stimulate publication of reports in the field of corporate sustainable development.

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