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CONTENS

INTRODUCTION

The formation of mechanism for corporate social and environmental responsibility in different sectors of Ukrainian economy is an up-to-date scientific problem that is outlined in the monograph. The relevance of the problem is strengthened by Ukraine's involvement into the world efforts on promoting the Sustainable Development Goals and developing a national system of the Sustainable Development Goals' implementation. A toolkit for solving this task is an effective dialogue between different stakeholders, whose claims and information requests determine the specifics of their corporate social and environmental responsibility strategies.

A number of problems that are strategically important for any country are solved within the task. Firstly, the competitiveness of companies, as well as country competitiveness increases. Secondly, the transparency of business environment is ensured by increasing the requirements to disclose business information on corporate social and environmental responsibility, and information according to the ESG criteria. Thirdly, a basis for activating regional development, taking into account the priority social and environmental projects, is created.

At the same time, introduction of corporate social and environmental responsibility requires development and implementation of financial and institutional support, informational and accounting support, as well as establishing effective communications between stakeholders at different levels and companies themselves, creating multi-stakeholder platforms and cross-sector partnerships to align interests of communities, consumers, regulators, as well as non-governmental organizations; and to promote progress towards the Sustainable Development Goals.

In general, the monograph introduces the scientific interdisciplinary research that describes the basics of managing interrelations between companies and stakeholders; outlines accounting and tax support of corporate responsible activities; illustrates financial aspects of public investment policy, and regional aspects of sustainable development.

The monograph contributes to a theory and methodology of corporate social and environmental responsibility strategy formation; describes effective communication with stakeholders, methodological aspects of influencing corporate responsible behavior on company competitiveness; provides a new accounting paradigm and creation of new types of reporting; adds to development of social infrastructure and human resources.

The monograph outlines the use of economic and mathematical tools to investigate the relationship between social capital of companies, their corporate social and environmental responsibility and the level of competitiveness; as well as interrelation between disclosure of companies' information on sustainable development and the ESG criteria and country competitiveness. In addition, particular attention is paid in the monograph to addressing the responsible behavior of companies at regional level. This approach helps to explore the phenomenon of corporate social and environmental responsibility at three different levels: corporate, local and national.

The monograph was performed within the framework of the research theme «*Corporate social and environmental responsibility for sustainable development: stakeholders' partnership in the real, financial and public sectors of the economy*» (state registration number 0117U003933), which is financed by the State budget of Ukraine and was prepared by a team of authors:

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CHAPTER 1 MODELING THE IMPACT OF CSER ON THE COMPETITIVENESS OF NATIONAL ECONOMY

1.1 Investigation of the impact of CSER on the competitiveness of companies in different sectors of the economy

Nowadays, the majority of companies recognize Corporate Social Responsibility (CSR) as an effective tool for providing sustainable development regardless of the field of their activity. While in developed countries the major part of companies actively uses CSR, in Ukraine, according to various analyses, only a quarter have a budget for granting CSR programs, and only one in ten companies evaluate CSR effectiveness. Companies with foreign capital operating in Ukraine play a significant role in the promotion of CSR in Ukrainian enterprises, organizations and institutions. Over the last 10-15 years, international companies have quite substantially changed their corporate social responsibility policy. Today, CSR is connected with the core company's business and supports real development, rather than simply reacting to attempts to prevent criticism. It was noted by Moura-Leite and Padgett (2011) that CSR has transformed from a "good affairs for society" to a combination of the social and business interests of key companies' stakeholder, and as a consequence has become a part of a successful business development strategy.

When companies began to realize that adjustment of social projects with their business model and goals influence on the growth of their competitive advantage, they started to use CSR more strategically. First of all, this concerned the active usage of fixed assets such as innovation, labour, suppliers, technology, access to markets, etc. CSR has begun to be perceived in another way. Initially, it was believed that the company's responsibility should provide some value to shareholders. Critics argued that corporate social responsibility contradict the company's interests. The first companies that agreed on the idea that CSR is vital and useful for both the community and companies were US companies. At one time, the CEO of Coca-Cola Company Neville Isdell (Isdell, 2019) proposed an approach to build relations between company and community in order to decide social problems to ensure sustainable and profitable growth in XXI century. N. Isdell called his concept of attracting international companies "connected capitalism". This concept should bring CSR to a new level of relationship between the private sector, government, non-governmental organizations and society through three main platforms: communities, institutions and their core business strategies. At the same time, it is important not to underestimate the potential impact of each stakeholder and identify their interests (needs) in time to get the maximum effect from CSR (Table 1.1).

Table 1.1. Key criteria for evaluation of stakeholders' interests

Stakeholder	*Criteria for interests evaluation*
Owner	Maximize profit
Employees	Salary level, working conditions, career growth
Business partners	A mutually beneficial partnership
Competitors	Fair competition
Consumers	High product/service quality and reasonable prices, transparency
Local government	Tax payment, creation of job positions, development of the region
Local community	Creation of job positions; economic, social and environmental development of the region
Society	Economic, social and environmental development of the country

As we can see from the table there are only the main stakeholders' expectations from doing their business, which is typical for most industries. Although 10 years ago, the maximum correspondence of money and quality was the main advantage for consumers in choosing a product or service, today many of them prefer a manufacturer that conducts a socially responsible business.

At present, the owners of large global companies heavily invest in intangible assets such as reputation and image in order to increase the value, as they are aware that the long-term economic company's value is determined not only by financial but also social, environmental and human capital. That is why investors pay a lot of attention to the Dow Jones Sustainability Score, the level of corporate social responsibility for choosing a recipient (Figure 1.1). Since the sustainability of companies in different sectors of the economy is associated with a high return on investment.

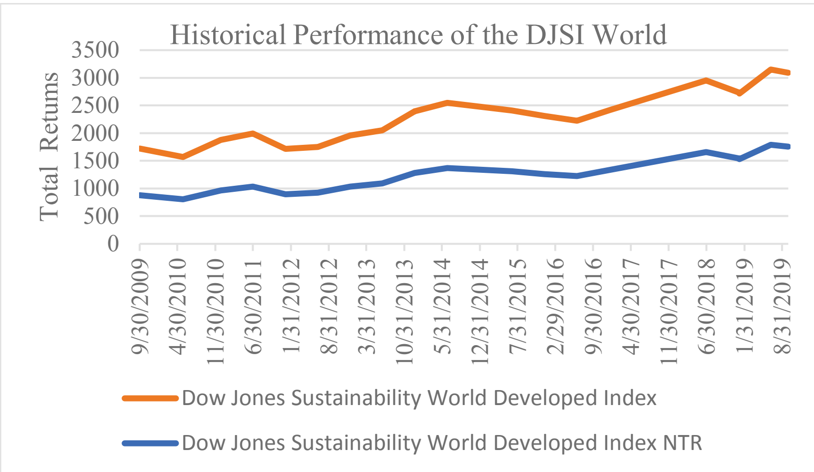

Figure 1.1. Historical Performance of the Dow Jones Indices World 2009-2019 (S&P DJSI, 2019)

At the same time, more than 85 % of global companies presently report on their activities in 2018. Information on the companies' reporting according to the S&P Dow Jones Index "Global Industry Classification Standard" for corporate sector organization is presented in Table 1.2 (Louis D. Coppola, 2018). It is also worth noting that despite the record high markets levels, the economy is slowing down (Fig. 1.2).

Table 1.2. Positive dynamics of downsizing of USA non-reporting companies (Louis D. Coppola, 2018)

Sector	Total compa-nies	2014	2015	2016	2017	2018	2017/ 2018 diffe-rence	2018 percent of sector not reporting
		non-reporters						
Communication	22*	N/A*	N/A*	N/A*	N/A*	8*	N/A*	36,36%
Consumer Discretionary	64*	24	24	22	15	7*	8*	10,94%
Consumer Staples	33	4	1	2	2	3	-1	9,09%
Energy	29	12	8	8	4	3	1	10,34%
Financials	68	24	24	15*	14	12	2	17,65%
Health Care	62	15	13	14	13	10	3	16,13%
Industrials	69	18	11	11	8	8	0	11,59%
Information Technology*	66*	20	15	10	10	13*	-3*	19,70%
Materials	25	2	0	0	1	0	1	0,00%
Real Estate**	32	N/A**	N/A**	7**	8	8	0	25,00%
Telecommunica tion Services	0	3	1	1	0*	N/A*	N/A*	N/A*
Utilities	27	1	2	0	0	0	0	0,00%
TOTAL	497	123	99	90	75	72		

** In 2018, GICS renamed the Telecommunication Services sector into the Communication sector and expanded it by including some companies from the Information Technology and Consumer sectors.*
*** In 2016, GICS selected the Real Estate sector as a major financial sector. As a result of these changes, the year-over-year comparison between these sectors is marked with asterisks as completely incomparable.*

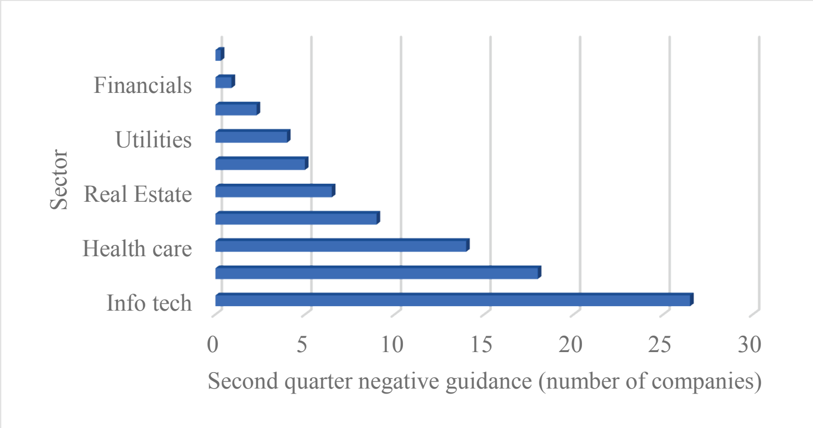

Figure 1.2. Corporate Sectors Profit and Loss Statement (Jeff Cox, 2019)

Current global trends additionally force domestic companies of different sectors of the economy to intensify their work with tangible and intangible assets.

Ukrainian business is growing fast. The success of companies is measured not only by the production of a quality product or the provision of a service. Today, society requires extra obligations to the companies' operating activity, which will allow achieving socially beneficial long-term goals. Therefore, despite the fact that ten years ago it was enough for businesses to proclaim themselves as socially responsible, but today, society demand real results.

For example, recently, the calls for environmental responsibility of businesses are placed on the international level. The present ecological situation does not allow disregarding the activities of organizations, enterprises and institutions that have harmful effects on the environment out of the public eye. Therefore, corporate social and environmental responsibility of business (CSER) is becoming vitally important. Nowadays, CSER requires that companies, regardless of their industry, must evaluate the impact of their activity on sustainable development. Usually, the greatest consequences are noticeable in economic, social and environmental activities (Fig. 1.3).

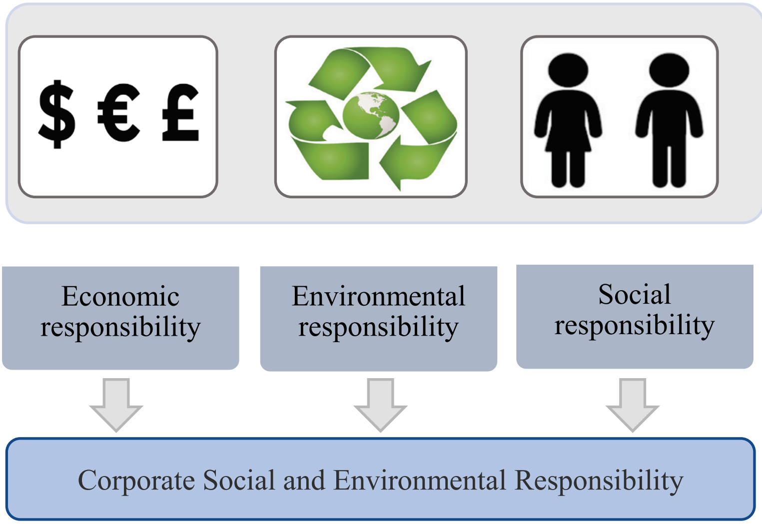

Figure 1.3. The main components of the CSER

Depending on the company's specificity and the level of its development, the number of funds allocated for social and environmental projects is different. At the same time, these projects are usually financed by the company's own capital, and such financial decisions are made with key stakeholders (company staff, shareholders, business partners, public organizations, local authorities, etc.).

Successful companies recognize that CSR measures are an effective tool for enhancing a company's competitiveness. As the competitive advantages of a company's goods or services are often increased due to intangible assets such as image, reputation, brand (Fig. 1.4).

The prevailing number of projects affects the company's development because, in addition to improving its image and reputation, the quality of the product (service) usually increases, and therefore the sales volume growth too. Moreover, companies that implement policies in the context of sustainable development faster find business partners, especially from countries with high economic development.

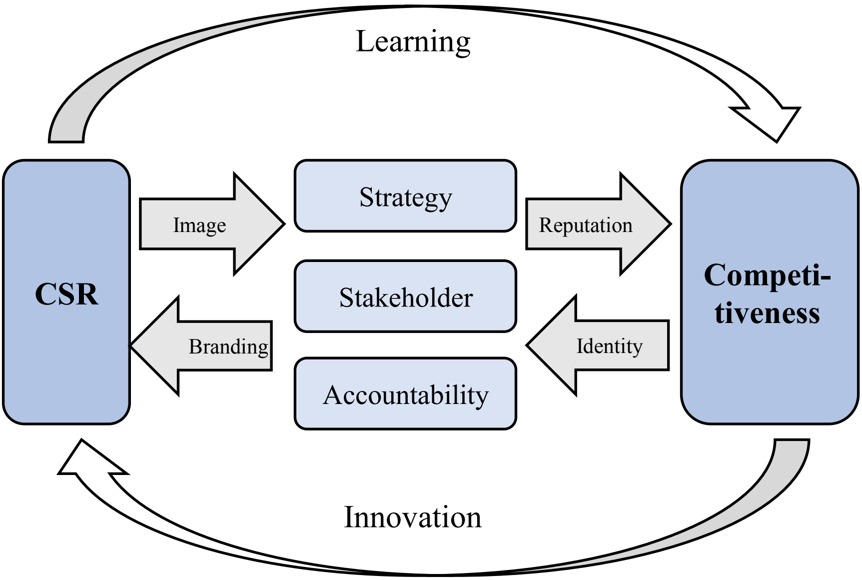

Figure 1.4. Interaction model of CSR and competitiveness (Vilanova Marc et al. 2009)

Authoritative and recognized world leaders in various sectors of the economy are constantly implementing socio-environmental projects to maintain their reputation and image and, as a consequence, are constantly increasing their level of competitiveness. For example, Google despite its high ratings continues to carry out CSR projects for making better the citizen's life. One prime example is Google's Green environmental policy, which demonstrates the efficient use of resources and support for renewable energy. As a result, the need for electricity for own data centres is decreased in two times (Hölzle, 2019).

Research on the impact of CSR on companies' competitiveness (Reimaging-operations PwC: A Global PwC Study, 2015) shows that more than 70 % of Europeans prefer to buy the product of socially responsible company's brand. Also, one in five European consumers is willing to pay in 5 times more for a product with minimal impact on the environment during its manufacturing. Another competitive advantage is 65 % of the respondents who have a desire to work in a socially responsible company.

Recent international data on sustainable development, such as the UN Global Compact Report 2019 released at the SDG Business Forum, indicate that 81 % of respondents take the necessary measures to achieve their global goals. At the same time, Lise Kingo, CEO and Executive Director of the UN Global Compact, points that “Being an impactful sustainable business means fully integrating sustainability into core business strategy, operations, supply chain management and stakeholder engagement” (SDG Business Forum, 2019).

1.2 Formalization of the relationship between CSER companies and the competitiveness of the Ukrainian economy

The debate about corporate social (and later social and environmental) responsibility (CSR / CSER) began in the far-off 1970s and 1980s, when the public began to learn about the hidden negative effects of companies. Subsequently, humanity learned about the ghost cities that died with the businesses, about the catastrophes caused by the activities of manufacturing enterprises, about the rivers where you cannot bathe, about lost health by the activities of people on industries without further social protection. Following the announcement of these problems in the society, a discussion began on the role of business and the social responsibility of companies. CSR definitions differ in terms of thematic and geography. Some are actively linking CSER to building sustainable communities. If in the US CSR is often associated with company employee volunteering programs and charity, the European understanding of CSR is often associated with doing business in a socially responsible way. According to (Vorobei, 2005), CSER is an attempt to go some distance and analyze where and how a company can help in address social and environmental problems by developing itself and developing the environment around it. CSER is also an awareness of the need for sustainable development of society. It is an attentiveness to the impact of current decisions on the capabilities of future generations.

By implementation of social activities, companies can gain the following benefits: building a more attractive image in society; increasing of trust in organizations; increasing turnover, customer list, etc., improving of attitude to organizations; there are opportunities to get better deals; through authority, organizations can pursue more active, effective policy in society, expanding their own business, including markets; there are opportunities to reduce local taxes, etc.

The issue of the rationality of the implementation of the principles of the CSER in the conduct of business of Ukrainian enterprises should not be in doubt. But, at present, the purely declarative approach to this issue prevails in the Ukrainian business environment. Although most businesses position themselves as socially responsible, but only a few perform systematically and clearly in this direction. These are mainly large exporting companies, representative offices of foreign companies and individual service companies. They report on the results and effectiveness of implemented practices. However, often such practices are simply a “fashion brand”. Another problem is that a number of enterprises introduce such practices, but do not correlate them with CSER, do not analyze their impact on the performance of companies, which also do not allow them to be used to the full extent to ensure competitiveness in both national and international markets. In turn, this leads to a decrease in the competitiveness of industries, regions and the economy as a whole. All these things requires for a comprehensive scientific justification of the role and direction of CSER implementation in companies' activities in order to ensure their strategic competitiveness.

The concept of CSR is widespread in Europe. In some countries CSR is integrated into public policy (Denmark, France, Finland, Sweden), in others, socially responsible practices are the sole prerogatives of companies (Greece, Ireland, the Netherlands, Slovenia). In the European Union, CSR plays a key role in supporting the sustainable development of the company, leading to responsible business behavior, improving the labor market situation, improving the quality of products and services provided by companies, and sustainable development in general (Center for CSR Development, 2012). Unlike in

Ukraine, in most European countries, CSER is able to influence the level of competitiveness of enterprises and the state as a whole. Almost all recent studies prove the impact of CSR on company performance. According to (Kavtysh & Prokopenko, 2016) "In companies that are implementing CSR practices, the profitability of sales increases by 3%, assets - by 4%, and capital and shares - by more than 10%. Internal socially responsible activities help to increase staff loyalty. This corresponds to the "Iron Law of Responsibility".

In the vast majority of countries with an innovation-driven economy, CSR is recognized at the state level and supported by national policies (Table 1.3). The contribution of CSR to the development of social innovation is significant and important for the development of the country.

It should be noted, that in Europe the issue of competitive advantage of socially responsible companies is being actively discussed. When we comparing the competitiveness of the US and Denmark, it should be noted that both countries are considered the most competitive countries in the world. However, this is a different kind of competitiveness - Danish companies are considered to be much more socially responsible than American ones, and they operate under tougher regulatory conditions in a country, that is actively promoting sustainable development. Company can be responsible and stay competitive. There is even a theory of corporate responsibility clusters that considers the creation of geographical clusters of companies with an approximate CSR strategy, such as industrial parks. Companies from such clusters, for example, will have synergies with the implementation of their own CSR strategies, and will have joint CSR developments that will contribute to their competitiveness (Vorobei, 2005).

Table 1.3. CSR in innovation driven economies

№	Country	CSR status
1	Australia	Nationally recognized, there are policies in different ministries (activities, programs, etc.)
2	Austria	Nationally recognized, there are policies in different ministries (activities, programs, etc.)
3	Belgium	There is a national CSR action plan, there is a Ministry of Sustainable Development, a non-financial report has been prepared
4	United Kingdom, Hong Kong, Greece, Cyprus, Luxembourg, Malta, UAE, South Korea, Portugal, Puerto Rico, Singapore, Slovenia, United States, Taiwan, China, Finland, Czech Republic, Switzerland	Nationally recognized, there are policies in different ministries (activities, programs, etc.)
5	Denmark	There is a separate CSR department, and a separate law on the reporting of large CSR companies
6	Israel	Recognized nationally, there are politicians in various ministries
7	Iceland	Recognized nationally, there are policies in different ministries, a separate MFA policy to promote the CSR of Icelandic companies in the world
8	Japan	The state is actively promoting, there are politicians in different ministries

With regard to the situation in Ukraine, the formation of CSER is significantly influenced by the social protection system inherited in the Soviet times in the form of a developed system of social objects - kindergartens, holiday homes, etc. It is also important that the population of the post-Soviet countries is accustomed to everything free of charge - recreation, medicine, education and more. With the formation of market relations, this legacy becomes a burden, manifested in the inefficient allocation and use of resources, outdated and inefficient management decisions. All of the above influences CSR policy-making by companies that need to ensure that the social infrastructure that workers, expected by local institutions, even local authorities.

One of the areas of reforming the CSER concept of companies are responsible behavior, improvement of working conditions, or introduction of new technologies, charity.

It should be noted that gradually Ukrainian companies (especially large companies operating in other countries or having foreign investors) are beginning to join European and national CSR development programs. Entrepreneurial medium-sized and small export-oriented enterprises will, through the need to certify compliance with business standards, adopt the practice of doing socially responsible business (Vorobei, 2005).

Different ratings promote the introduction and development of corporate social responsibility in enterprises. In the United States, for about 20 years, Corporate Responsibility Magazine make a sufficiently high CSR rating, which is summarized in Table 1.4 (CR Magazine's, 2018). The evaluation takes place in each of seven categories (303 indicators in total): environment, climate change, labor relations, human rights, corporate governance, finance, charity and community support.

As we can see, for US companies CSER has already become a major competitive advantage, an important factor in the fight for the consumer and a PR tool, while in Ukraine the importance of CSER is recognized only by leading companies that want to improve their reputation and gain more benefits from the implementation of CSER. Social responsibility ratings are also conducted in Ukraine. Since 2011, the CSR Development Center has been compiling a Website Transparency Index of Ukrainian companies based on the international methodology, that is developed by the CSR Development Center and Beyond Business (Israel). The results of the rating are presented in Table 1.5.

Table 1.4. TOP-5 CSR Leaders in the United States (formed by the authors based on (CR Magazine's, 2018))

2016	2017	2018
Microsoft Corporation	Hasbro, Inc.	Microsoft Corporation
Intel Corp.	Intel Corp.	Accenture plc
Hasbro, Inc.	Microsoft Corporation	Owens corning
Jonson & Jonson	Altria Group Inc.	Intel Corp.
Ecolab. Inc	Campbell Soup Co	Hasbro, Inc.

Table 1.5. TOP-5 Transparency Index Leaders in Ukraine (formed by the authors based on (Zinchenko, 2018))

2015	2016	2017
ArcelorMittal Kryvyi Rih	ArcelorMittal Kryvyi Rih	PJSC «Mironovsky bread product »
Obolon	DTEK	DTEK
DTEK	SCM	PJSC «Mironovsky bread product »
Metinvest	Galnaftogaz Concern	ArcelorMittal Kryvyi Rih
Group of companies "Foxtrot"	NJSC Naftogaz of Ukraine	NJSC “Ukrenergo”

Thus, according to (Zinchenko, 2018), the average level of disclosure of CSER information on the sites of Ukrainian companies in 2017 remains rather low - 21.7%. For the most part, corporate sites contain information on the practice of employment, community development and support, and the environment. Management issues, CSER implementation programs in the supply chain, and responsible marketing policies are the least covered. As in previous years, for the most part of Ukrainian companies do not cover the results of their CSER activities. Only those companies that made a report. Even they do not always provide this information in the relevant sections of the site. International companies have a higher level of CSER disclosure.

Due to the deepening of globalization processes, research into the problem of maintaining national competitiveness becomes more relevant. Competitiveness is a major category of market economy. The set of factors that shape the preconditions for competitiveness of countries is due to the increased degree of integration of countries with different levels of socio-economic development and competitive opportunities. High degree of competitiveness of a country is characterized by the presence in it of mechanisms of formation of conditions and means which predetermine its national security, economic development and increase of level of welfare of the population. At the present stage, Ukraine's rankings in the rankings of international organizations, unfortunately, indicate its low level of competitiveness.

The most important prerequisite for a country's competitiveness is the activity of the state, which defines and implements a competitiveness strategy, establishes the functioning ("rules of the game") of market relations. A condition for the country to emerge from the crisis and to integrate into the European Union (EU) is the development and implementation of the National Strategy for Enhancing Domestic Competitiveness.

Significant changes are needed in the selection of economic development priorities in global competition. Ensuring a country's competitiveness is the key to its gradual development. Since 2004, the Global Competitiveness Index (GCI) has been calculated by methodolody of Professor Xavier Sala-i-Martin, Columbia University. The GCI rating is based on 113 indicators, taking into account of which 12 benchmarks have been formed (institutions, infrastructure, macroeconomic environment, health and primary education, higher education and professional training, commodity market efficiency, labor market efficiency, financial market development, technological development, market size, business compliance with modern requirements, innovations) according to three main subindex groups: "Basic requirements", "Performance enhancers", "Innovations and factors of improvement". The index is rated on a scale of 1-7, the highest value of which is the best (World Economic Forum, 2017).

The leading countries according to the Competitiveness Index in 2016-2018 are presented in Table 1.6, the value of the indicator for Ukraine - in Table 1.7.

Table 1.6. Ranking of countries by Competitiveness Index 2016-2018 (generated by the authors based on the data (World Economic Forum, 2017))

Country	2016	2017	2018
Switzerland	1	1	4
Singapore	2	3	2
USA	3	2	1
Netherlands	4	4	6
Germany	5	5	3

As we can see, the values of the indicator in 2014-2018 indicate a threat for the positions of national producers not only in foreign but also in the domestic market, and also negatively affect the innovative development of the national economy. The analysis of the individual components of the index shows that under the first sub-index «Basic Requirements» Ukraine improves its result by creating a favorable institutional environment for the interaction of business and government as major stakeholders in structural changes in the economy. According to the second sub-index «Infrastructure», Ukraine has good values, but they are related to projects that were implemented during the preparation of the country for the finals of the Euro-2012 football championship. It is desirable to develop this area because infrastructure stimulates competition and economic development in general. Ukraine's dependence on external financial resources remains unchanged. And it has a negative impact on public investment in actions aimed at improving competitiveness.

Table 1.7. Ukraine's place in the annual competitiveness index (generated by the authors based on the data (World Economic Forum, 2017))

Year	Place	Changes from the previous year
2014-2015	76 out of 144 countries	-
2015-2016	79 out of 135 countries	-3
2016-2017	85 out of 140 countries	-6
2017-2018	81 out of 137 countries	+4
2018	83 out of 140 countries	-2

Insufficient financial resources of both the state and economic entities will not hinder the development of CSER policy. Recognizing its importance and results/effects (Table 1.8), companies mostly implement low-budget measures that will counteract, for the most part, the improvement of the company's reputation and, possibly, in the long term, economic results. Thus, during discussions at the International Forum in

2017 (Impact of corporate social responsibility, 2017), it was found that 20% of CSERs in the company's reputation are found, 96% of top executives of global companies believe that CSERs add value to the company's reputation; 80% of employees consider CSER an important factor in choosing a company; 91% of consumers expect CSER projects from the company they are buying. However, studies of Ukrainian realities have revealed a rather low level of implementation of CSER in the activities of companies.

Table 1.8. Results of CSER implementation by companies for the country's competitiveness

Economic sphere	- Investments in skills development, lifelong learning and employment, that required to maintain competitiveness in the global knowledge economy. - Increasing of employment. - Improving of lives of communities.
Ecological sphere	- More rational use of natural resources. - Reducing of the pollution levels. - Dissemination of eco-innovation. - Formation of environmental management system; including resource and energy conservation measures, development of alternative energy sources, etc.
Humanitarian sphere	- Respect for human rights. - Cooperation in the field of support for cultural policy in Ukraine and policy on the preservation of historical heritage. - Formation of civil society with its further integration into political processes in Ukraine.
Social sphere	- Increasing of the level of integration into the labor market and the level of social inclusion. - Development of social innovations, expansion of social business. - Poverty reduction.

Thus, CSER of companies is an important impetus for the development of society towards sustainability, overcoming poverty, improving the quality of life of the population, developing economic relations, improving the efficiency of cooperation between government and business. As a result, these results of the CSER impact will positively affect the value of the global competitiveness indicator.

CHAPTER 2 MODELING THE EFFECTS OF CSER IN THE ACTIVITIES OF COMPANIES ON THE INDICATORS OF THEIR EFFECTIVENESS

2.1 Formalizing of the relationship between CSER, ESG criteria, transparency of manufacturing companies and their financial performance

Acquisition of advantages of implementation CSR practices depend on sectors of business debated in many studies. Tallontire (2007), Hartmann (2011) described specifics of CSR to food industries from single-firm level to food supply chains and food networks; Melewar and Akel (2005), Atakan and Eker (2007) formalized CSR approach to higher education sector and peculiarities of establishment socially responsible university; Wu and Shen (2013) evaluate motivation and financial performance of implementing CSR in banking industry.

At the current growth rate and urbanization, there is a required additional investment in the creation of sustainable infrastructure through which communities can be empowered to achieve environmental objectives, attain economic prosperity and social stability. Every additional working place in manufacturing creates 2.2 working places in other sectors. A process of "cumulative causation" (Myrdal, 1957; Kaldor, 1957; 1958) which inherent in manufacturing activities creates employment and accelerates increase in capacities of another sector of economy. Thus, within the industrial sector there was a general reduction in the share of manufacturing in value added (Table 2.1). In developed countries, the reduction of the share of industry in total value added was caused mostly by manufacturing (its share from 26.4 per cent to 14.6 per cent). Decline in manufacturing matched expansion of services.

Table 2.1. Share of industry in total value added and employment, selected groups and economies, 1970–2014 (per cent) (UNCTAD, 2016)

	1970	1980	1990	2000-2007	2010-2014
Share of industry in total value added (at current dollars)					
Developed economies	38.6	36.5	34.6	28.5	26.2
East Asia	30.0	35.6	34.7	32.6	29.9
Transition economies			42.9	33.9	33.0
Share of industry in total employment					
Developed economies	36.3	35.4	31.3	26.9	23.9
East Asia	18.4	29.5	34.7	28.1	25.3
Transition economies			29.7	18.2	23.0
Share of manufacturing in total value added (at current dollars)					
Developed economies	26.4	20.6	18.3	16.1	14.6
Share of manufacturing in total employment					
Developed economies	26.8	20.7	16.9	14.3	12.8

Historically the expansion of manufacturing has tended to contribute to the pollution of air and water, as well as lead to degradation, overexploitation of natural resources and social costs. Excessive carbon emissions due to manufacturing prosses associates with climate change and global warming. CSR Survey in Japan (Sakurai, 2003) indicates that overall level of effort in environmental preservation is higher in manufacturing industries than in nonmanufacturing (since this sector of economy tend to place a larger burden on the environment).

Defenders of industrialization insist: the negative effect of the industry can be levelled by implementation "green" technologies to range of manufacturing production processes and CSR strategies as an ethical and moral obligation of the company. Handayani et al. (2017) based on structural equation modelling determined significant positive influence of CSR to the performance of large-scale manufacturing. Authors proved that involvement of social participation and green innovation in

CSR in manufacturing can improve environmental sustainability and social welfare. Positive influence of CSR strategies to the performance of the industrial companies are found in a number of other studies. Results of research by Mutasim and Salah (2012) revealed a positive relationship between CSR activities and profitability of the industrial companies. Similarly, significant relationship between CSR investments and financial performance of manufacturing firms was assessed by Akinyomi et al. (2013).

Szczanowicz and Saniuk (2014) propose a concept model for implementation of CSR in small and medium-sized manufacturing enterprises. Model consists of 4 stages: (1) a company fulfils all legal requirements relating to its activities; (2) a company fulfils all basic social expectations; a negative impact is eliminated; (3) a company constructs its competitive advantages on practices important for its key stakeholders; (4) a company implements values, procedures and actions into its strategy.

Manufacturing plays an extremely important role in Ukrainian economy. However, manufacturing value added (%) in Ukraine was reported at 14.19 % of GDP in 2016 according to The World Bank (2016) (Figure 2.1).

Manufacturing sector in Ukraine have the following key peculiarities:

1. Economic:

• absence of programs and mechanisms that stimulate implementation of innovation and quality improvement initiatives;

• high level of overhead expenses and energy costs;

• increasing raw material and components costs;

• reducing of production capacities loading;

• significant level of heavy metal capacity;

• low-profitability level and long period of return on investments;

• long production cycle, undeveloped infrastructure;

• small quantity of orders.

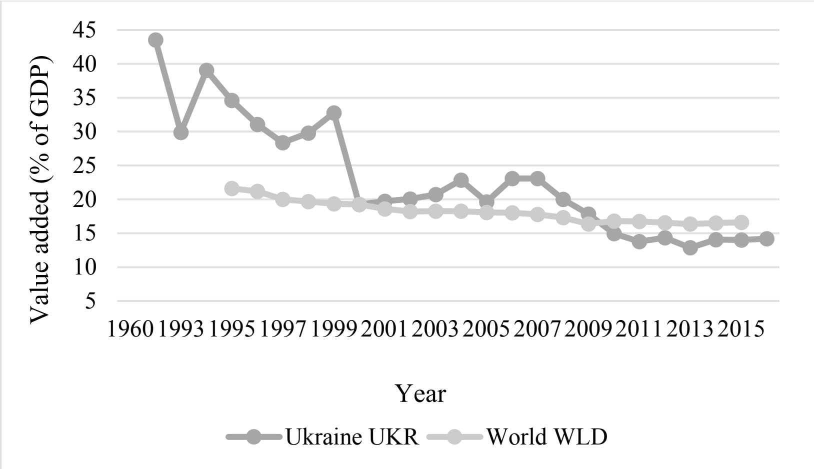

Figure 2.1. Manufacturing, value added (% of GDP) (own calculations, data: The World Bank, 2016)

2. Social:

• qualified workforce migration to other countries;

• low efficiency of labour safety system;

• undeveloped social infrastructure;

• low priority of workers social needs (transport, overalls, etc.);

• unsatisfactory level of responsibility for staff performance;

• low investment in staff development.

3. Environmental:

• outdated production technologies and equipment;

• high energy intensity and material resources;

• unfavourable structure of industrial production with high concentration of environmentally hazardous activities;

• lack of proper environmental protection systems.

The low level of CSER development in manufacturing sector of Ukraine is caused by a number of factors: (1) lack of specialized legal norms or standards in CSER on state level. Concept of National Strategy of CSR (2011) generalized understanding of CSR in Ukraine and described general strategy and mechanisms of state policy on social responsibility among business. But document doesn’t provide business with direct instructions or mechanism of CSR and CSER implementation. (2) A low level of awareness of the content of CSER; (3) the lack of funds (it was indicated as the most important factor hindering the development of CSER (Zinchenko, 2010).

There is a lack of systematic statistical studies and data sets selection on indicators showing the relationship between CSER activities of industrial companies in Ukraine and their financial performance. The probable reason for the low information coverage of CSER activities of Ukrainian enterprises is the lack of openness and transparency, as well as the initial stage of information infrastructure creation in this area.

At the same time there is number of studies on the state of CSR and CSER of Ukrainian companies conducted by different organizations for different periods with incomparable methodologies (Table 2.2).

Methodology by National rating «Gvardia» include a separate block of criteria for assessing companies CSR activities, for example "Social Report as an instrument of dialogue with society". Among these criteria, the main role is played by the relevance of non-financial information to the generally recognized Guidance and Standards of Sustainability Reporting of the Global Reporting Initiative. DTEK was recognized as a leader on the level of disclosure of CSR information according to the results of the survey of social reports and questionnaires of companies in 2013. However, we should conclude that the publication of the methodology has low relevance and inadequate periodicity.

Table 2.2. Review of CSR research activities of the Ukrainian companies (Centre for CSR Development Ukraine, 2016; National rating «Gvardia», 2013)

Methodologies	Organization	Scope	Period
Index of transparency and accountability of the Ukrainian state-owned companies	Centre for CSR Development Ukraine	60 the biggest state-owned companies in Ukraine	2014-2015
Index of transparency and accountability of the Ukrainian companies	Centre for CSR Development Ukraine	100 the biggest companies in Ukraine in 18 branches	2011-2016
Rating of openness and companies' activity in CSR	National rating «GVardia»	41 Ukrainian companies in «Gvardia – 500»	2011-2013

More regular methodologies, which systematically take into account CSR and CSER activity of companies and disclosure of information about it are those for assessing the transparency and accountability of the largest representatives of Ukrainian business of the Centre for CSR Development Ukraine. The rating of companies' websites transparency is based on reporting, navigation and accessibility parameters. Moreover, this methodology is universal: besides the manufacturing companies and companies in other industries, it is relevant for state-owned companies in public sector and banks.

Index of transparency and accountability evaluation based on this methodology confirm the need for strengthening transparency and accountability of the Ukrainian companies. Erergoatom had a leading position among the state-owned companies in 2016; ArcelorMittal Kryviy Rih had a leading position among the manufacturing companies. It should be noted that ArcelorMittal Kryviy Rih, as a powerful manufacturing company, retained its leadership in the Index in 2014-2016 (Table 2.3). In general, the methodology for assessing the transparency and accountability of Ukrainian companies plays an important role in development of benchmarks in the business environment, but they have to meet the requirements of regularity, universality and relevance to current trends in CSER reporting standardization.

Table 2.3. Leaders of the Ukrainian company's transparency and accountability index in 2012-2016 (Center for CSR Development, 2017)

№	2012	2013	2014	2015	2016
1	SCM	DTEK	ArcelorMittal Kryviy Rih	ArcelorMittal Kryviy Rih	ArcelorMittal Kryviy Rih DTEK
2	DTEK	ArcelorMittal Kryviy Rih	DTEK	Obolon	-
3	Metinvest	SCM	SCM	DTEK	SCM
4	ArcelorMittal Kryviy Rih	Obolon	Obolon	Metinvest	Galnaftogaz
5	Kyivstar	Metinvest	Metinvest	Foxtrot	Naftogaz
6	Interpipe	Carlsberg	Kyivstar	Kernel	Kernel
7	Galnaftogaz	Kyivstar	Carlsberg	SCM	Metinvest
8	Dnipro-spetsstal	Interpipe	Galnaftogaz	Galnaftogaz	MHP
9	METRO	Dnipro-spetsstal	Dnipro-spetsstal	Dnipro-spetsstal	Foxtrot
10	MTS	Galnaftogaz	Mondelis	Nestle	Erergoatom

In total, 63 out of 100 evaluated Ukrainian companies were selected according to the methodology of the transparency and accountability index by the Centre for CSR Development Ukraine.

The indexes of transparency and accountability of the companies, as well as indicators of their financial performance (revenue and profit) for a period of 2015-2016 were analyzed. Transparency index data was taken from the research carried out by the Centre for CSR Development Ukraine; financial performance data – from the annual financial statements for 2015 and 2016 for every investigated company.

The authors' methodology for investigating the impact of CSER on the financial performance among companies in the manufacturing sector is based on the fact that CSER is a qualitative feature, and it is based on the use of nonparametric research methods.

The key requirements with regard to implementing the methodology are as following:

- achieving comparability of the studied data and the unity of the information base. In this regard, all the financial performance indicators are selected from companies' annual reports, and made under the National Accounting Standards (Regulations);
- illustration of companies Key Financial Performance Indicators (revenue and profit), which fully characterize their financial performance and status as depended variables;
- use of transparency and accountability index of manufacturing companies as an integral indicator, which illustrates not only the disclosure of information about the companies' economic activity and financial performance, but also their CSER activities and sustainable development as an independent variable;
- use of the simple nonparametric methods for investigating relationship between variables, in particular the Fechner coefficient and the Spearman rank correlation coefficient.

A traditional methodology for evaluation of the Fechner coefficient and the Spearman rank correlation coefficient is used.

Thus, when comparing parallel series of independent variable (X) and the depended variables (Y), an important step is the assessment of tightness (strength and direction) comprising relationship between them. Fechner coefficient has the simplest methodology, designed to perform this task:

$$K_F = (C-H)/(C+H),$$

where C – the number of matches (coincidence) of variable deviations signs from its average; H – the number of discrepancies (non-matches) of variable deviations signs from its average;

When inequality $X \geq \overline{X}$ or $Y \geq \overline{Y}$ is performed, values of depended and independent variables should be marked with signs «+»; if opposite inequality is performed, values of depended and independent variables should be marked with signs «-».

When both variables sign, they have the same designations. Such a case is treated as a coincidence, and when there are different signs, such a case is treated as a non-matching. The decisive feature of this coefficient is its critical limits [-1 to +1], which allow us to draw conclusions not only about the tightness of the link between, including independent and depended variables, but also the direction of such relationship (direct or inverse). When the Fechner coefficient equal to 0, the relationship between the variables is weak, and when it equals to 1, the relationship is close.

The Spearman rank correlation coefficient has a higher accuracy compared to the Fechner coefficient. However, the parallel use of these coefficients is complementary in view to their consistency in the statistically significant (studied of the variables) set of values. When the estimated value of Spearman's correlation coefficient equals or approximately equals to 1, it indicates the existence of a close relationship between the independent and depended variables. When its value is less than 0.3, it is considered that the relationship between the studied variables is very weak or absent.

$$\rho = 1 - 6\Sigma d^2/n(n^2-1),$$

where d – the difference between the ranks of independent and depended variables; n – number of rank pairs.

In general, the gradation of the relationship regarding connection between the independent and depended variables can be carried out according to the well-known Chaddock scale (Table 2.4).

Table 2.4. Interpretation of calculating values of the Spearman's coefficient (Chaddock scale)

Value	Qualitative characteristic of relationship
0-0.09	Relationship is absent
0.1 – 0.29	Week (low level)
0.3 – 0.49	Moderate
0.5 – 0.69	Noticeable (average level)
0.7 – 0.89	Close (significant level)
0.9 – 1	Very close (high level)

A distinctive feature of the Spearman rank correlation coefficient from the Fechner coefficient is the possibility of statistical verification of evaluated results. The calculated criterion of this coefficient is compared with critical criterion of Student for a given probability to estimate its statistical significance.

The estimation results of Fechner and Spearman coefficients for the analysed data and sets of manufacturing companies (63 companies in the sample), obtained at the level of significance $\alpha = 0{,}05$ are statistically significant, and the relationship between independent and depended variables is adequate (Table 2.5).

Table 2.5. Impact of the Ukrainian manufacturing companies CSER activities, transparency and accountability on their financial performance (2016)

Financial performance indicators	Relationship coefficient	Value	%
Revenue, UAH, bln	Fechner coefficient	0.520	52.0
	Spearman coefficient	0.501	50.1
	Criterion t_p	3.337	–
Net profit (loss), UAH, mln	Fechner coefficient	0.478	47.8
	Spearman coefficient	0.464	46.4
	Criterion t_p	4.801	–

The obtained results give evidence that there is a direct and significant relationship between CSER activities, transparency and accountability of the Ukrainian manufacturing companies and their sales revenue from, as well as the direct relationship between CSER activities, transparency and accountability and their net profit (loss).

It should be noted that the signs under the calculated Fechner coefficients are completely consistent with the obtained values of the Spearman rank correlation coefficient, and confirm the direct relationship. Thus, the impact of transparency and accountability of the Ukrainian manufacturing companies on their financial performance is proved on the basis of nonparametric methods.

Companies should publish information on the CSER about their webpages (it should be more detailed with clearly defined indicators and results of its implementation).

The company's official web pages should not only be filled with information that investors, consumers, partners and authorities are interested in but should become more valuable, accessible, interactive.

In order to inform stakeholders and general public about social responsibility policies of companies, they have to prepare social reports. Preparing reports will also allow companies to analyse their efforts and integrate CSER into their business strategy.

2.2 Formalizing of the relationship between CSER, ESG criteria, transparency of trading companies and their financial performance

CSER for Ukrainian companies, and especially for trading companies, is a completely new lever of strategic management, the potential of which has not yet been fully explored.

CSER of a trading company is a concept for creating and implementing a set of legal, technological, economic, marketing and other tools that allow to establish special relationships between the producer, trader and other stakeholders, based on responsibility to one another and aimed at ensuring the sustainable development of the territory (adapted by authors on the basis of (Akhnovskaya and Lepikhova, 2016). We propose the following conceptual principles of CSER of a trading company (Fig. 2.2).

CSER for a trading companies is justified by the struggle for the consumer, which over time becomes more and more demanding and in its choice relies on the image of the company, incl. the impact of its activities on the environment.

Characteristics of impact of trading company activity on environment are presented in Table 2.6.

The responsibility for the negative consequences of the impact of its activities should be borne by the trading company - this is the main purpose of the CSER. Costs of CSER or responsible activities can directly affect financial performance, but it is important not to minimize them, but to optimize them in terms of the CSER initiatives of the company and to ensure that financial performance is acceptable to it. Therefore, the development of methods to take into account the negative effects of the impact and ensure the effectiveness of the activities becomes quite urgent task.

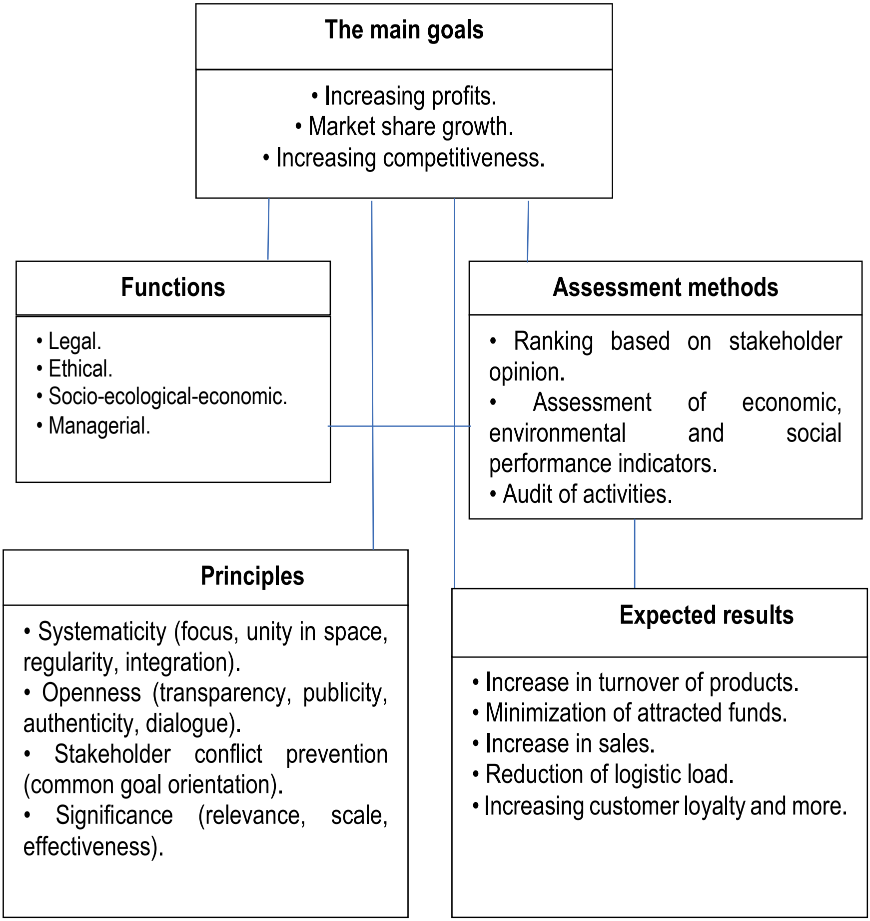

Figure 2.2. Conceptual principles of CSER of a trading company (adapted by authors on the basis of (Akhnovskaya and Lepikhova, 2016))

Table 2.6. Impact of trading company activity on environment

Functional subsystem	Economic characteristics	Characteristics of environmental impact
Purchase	Managing commodity and related flows in the process of providing the enterprise with goods for further sale	• Waste management of purchase and distribution processes • Contact of people with environmentally hazardous ingredients when handling and packing of loads. • Environmental pollution due to spillage, leakage, evaporation of cargoes through poor quality packaging
Distribution	Managing the distribution of commodity and related flows between different consumers, ie in the process of selling goods	
Storage	Management of warehousing and other tangible and intangible operations carried out in the course of storage of products and processing of relevant information	• Disposal of solid waste from storage processes • Environmental pollution due to damage to the integrity of goods due to poor packaging during storage
Transportation	Solution of complex tasks related to the organization of movement of goods	• Air pollution by vehicle exhaust fumes • Noise and vibration pollution • Mechanical effects of dust and soot on vegetation • Use of non-renewable fuels etc.
Information support	Management of information flows that circulate between the system and the environment	Electromagnetic radiation when transmitting information by technical means of communication

In our view, one possible solution is to consider the potential environmental impact of the overall costs, which we will refer to as “CSER costs”. We propose to consider the structure of these expenditures on the basis of the concept of total costs proposed by V. Kisliy in work (Kisliy et all, 2002).

Under the total costs of a CSER of a trading company, we mean the cost of providing an activity, the cost of offsetting the environmental impact of that activity, and the cost of social development.

In Fig. 2.3 The overall cost structure of CSER of a trading company is conceptually presented, as the main components we propose to determine the economic, environmental and social costs.

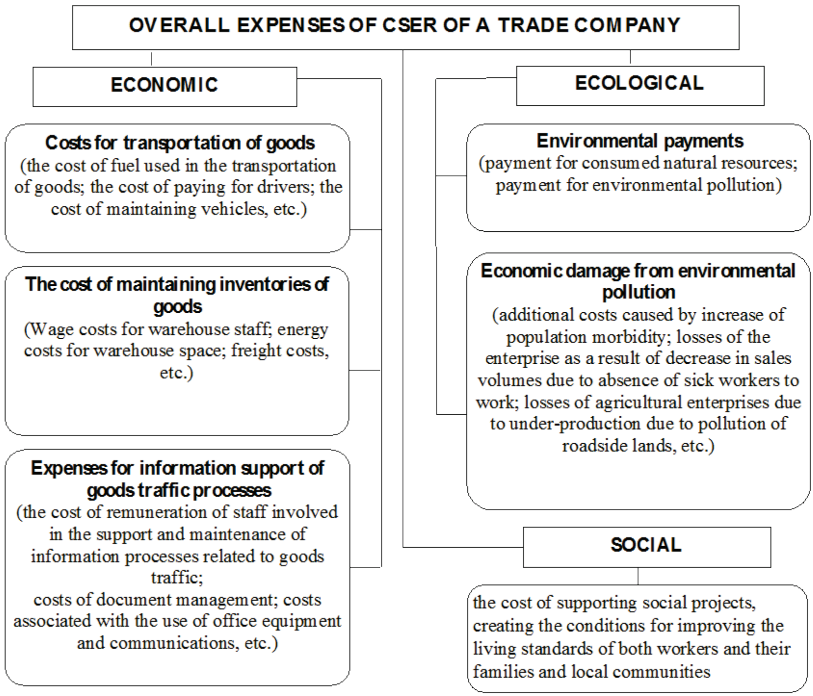

Figure 2.3 Cost structure of CSER of a trading company

CSER plays an important role in the system of business relations, being one of the core values of interaction. In the context of the widespread implementation of CSER in the activity of enterprises, trading companies should identify new management problems that arise in the implementation of business functions and direct efforts to solve the problems of increasing of the organizational level of the sales management system, which are indicators of business performance.

The main reasons why manufacturers refer to trading companies for marketing products rather than do it themselves, are the following:

- cost savings;
- lack of own transport, regional warehouses, staff, etc.;
- trading companies use innovative approaches;
- trading companies are able to adapt more quickly to the needs of consumers, etc.

Trading companies are inherently intermediaries between producer and consumer, and the number of trading companies on the way to bring products to the consumer can be quite significant. In these circumstances, it is difficult to even imagine what environmental impact each of them has in the course of their activities, using resources, transport etc.

As an example, we propose to consider a methodological approach to selecting a commodity distribution option that would allow us to estimate and optimize the associated costs of time, resources, costs, and costs for offsetting the adverse environmental impact.

In order to choose a trading company for the option of distribution of goods, optimal in terms of time, economic costs and environmental impact, we carried out an ecological and economic evaluation of options for the distribution of goods by commercial enterprises. The eco-economic assessment was performed on the basis of a possible result matrix (Table 2.2), which analyzed the distribution options: direct (delivery of goods directly to the retailer), indirect (use of intermediary) and mixed (simultaneous use of direct and indirect types of distribution). Parameters of the distribution of goods were determined by time (T, days), economic costs (C_{econ}, UAH) (cost of delivery) and costs of CSER (C_{CSER}, UAH) (cost of delivery, taking into account the costs of social development and the cost of damages from the negative impact on the environment.). The elements of the matrix were the values of the parameters for selecting the appropriate distribution option.

Table 2.7. The matrix of possible results

Options for the distribution of goods	Criteria for the distribution of goods		
	Time (T)	Economic costs (C_{econ})	CSER costs (C_{CSER})
Direct	T_{11}	$C_{econ\ 12}$	$C_{CSER\ 13}$
Indirect	T_{21}	$C_{econ\ 22}$	$C_{CSER\ 23}$
Mixed	T_{31}	$C_{econ\ 32}$	$C_{CSER\ 33}$

The use of this matrix allows you to choose the optimum distribution of goods in terms of time, cost and environmental impact.

Testing of the proposed methodological approach was carried out on the example of enterprises engaged in trade in food products, conditionally designated as "Company 1" (uses the direct variant of distribution of goods), "Company 2" (uses the indirect variant of distribution of goods) and "Company 3" (uses the mixed distribution goods).

On conducting ecological and economic evaluation of variants of distribution of goods, we calculated the values of parameters for different options for delivery of goods by trading companies (Table. 2.8-2.10), while the volume of sales was assumed to be equal to the average weekly. This is due to the fact that the analyzed companies in their activity use a system of distribution of goods with a fixed interval of time between deliveries, which is an average of one week.

Table 2.8 Parameters calculation matrix for different company distribution "DTS-Kharkiv" LTD

Options for the distribution of goods	Criteria for the distribution of goods		
	Time (T)	Economic costs (C_{econ})	CSER costs (C_{CSER})
Direct	5	52588,53	58582,55
Indirect	6	52639,60	56241,50
Mixed	4	53610,95	59625,57

Table 2.9 Parameters calculation matrix for different company distribution "Masterproduct-2005" LTD

Options for the distribution of goods	Criteria for the distribution of goods		
	Time (T)	Economic costs (C_{econ})	CSER costs (C_{CSER})
Direct	5	12811,67	14258,06
Indirect	6	10445,02	11547,05
Mixed	4	10564,23	11807,84

Table 2.10 Parameters calculation matrix for different company distribution "Sumyproduct-2005" LTD

Options for the distribution of goods	Criteria for the distribution of goods		
	Time (T)	Economic costs (C_{econ})	CSER costs (C_{CSER})
Direct	5	13949,82	14725,38
Indirect	6	11810,62	12370,92
Mixed	4	11894,68	12584,14

According to Tables 2.8-2.10, the option "time" is the best option for mixed delivery of goods, because it allows you to sell goods not only on their own, but also by attracting an intermediary, which usually reduces the storage costs of products in the warehouse of a wholesaler and accordingly reduces the time realization - delivery of goods to the retail network. For other parameters, the most appropriate option is the delivery of goods through an intermediary, which is explained by the following factors:

- reduction of the cost of storage of the goods in the warehouse of the wholesaler (the goods are not dependent on the warehouse of the wholesaler as they are taken away by the intermediary);
- reduction of transport costs (possibility of co-loading), and therefore harmful emissions into the atmosphere, etc.;
- reduction of labor costs, etc.

There is no option from any of the businesses that would be optimal for three criteria at a time. This fact allows us to use for deciding on the best in all parameters of the variant of the distribution of goods decision-making criteria under uncertainty (Table 2.11).

The application of the above criteria requires the homogeneity of the data forming the matrix, so to obtain comparable results, we present the parameters (Tables 2.8-2.10) as relative values, dividing the elements of each column by its minimum value (Tables 2.12-2.14).

After calculating the criteria, we present their values in a common table (Table 2.15).

Table 2.11 – Criteria for decision making under uncertainty (Shelobaev, 2000; Lukinsky, 2007)

Criteria	**Essence**
Laplace's criterion	To decide on each action (delivery option) R_j, the arithmetic mean of the losses is calculated - V: $$M_j(R) = \frac{1}{n}\sum_{i=1}^{n} V_{ji} \cdot \qquad (2.1)$$ If, as in the analyzed case, the matrix of possible results is represented by the matrix of losses, then among $M_j(R)$ choose the minimum value, which will correspond to the optimal strategy: $$W = \min\{M_j(R)\}, \qquad (2.2)$$ where W is the value of the parameter that corresponds to the optimal strategy (delivery option).
Wald's criterion	In the case where the Vji result is a loss, a minimum criterion is used to select the optimal strategy. In the first step, the largest element $max\{V_{ji}\}$, must be found in each line, and then the action Rj (line j) is selected to match the smallest element of these largest elements: $$W = \min_j \max_i \{V_{ji}\} \cdot \qquad (2.3)$$
Sevidge's criterion	Uses a risk matrix whose elements rji are defined by the formula $$r_{ji} = V_{ji} - \min\{V_{ji}\} \cdot \qquad (2.4)$$ Thus, *rji* is the difference between the best value in the column and and the values of *Vji* at the same value *i*. According to the criterion, it is recommended to choose the strategy (*W*) for which the risk value assumes the lowest value in the most unfavorable situation: $$W = \min_j \max_i \{r_{ji}\} \cdot \qquad (2.5)$$
Hurwitz's criterion	This approach is based on the following two assumptions: the system may be in the most disadvantaged state with probability (($1-\alpha$)) and in the most favorable state with probability α, where α is the confidence factor. If the elements of the matrix represent losses (as in our case), then choose the action under which the following condition is fulfilled: $$W = \min_j[\alpha \min_i V_{ji} + (1-\alpha)\max_j V_{ji}] \cdot \qquad (2.6)$$ For α=1, we obtain the Waldo test.

Table 2.12. Parameters calculation matrix for different company distribution "DTS-Kharkiv" LTD

Options for the distribution of goods	Criteria for the distribution of goods		
	Time (T)	Economic costs (C_{econ})	CSER costs (C_{CSER})
Direct	1,25	1,0000	1,0416
Indirect	1,5	1,0010	1,0000
Mixed	1	1,0194	1,0602

Table 2.13. Parameters calculation matrix for different company distribution "Masterproduct-2005" LTD

Options for the distribution of goods	Criteria for the distribution of goods		
	Time (T)	Economic costs (C_{econ})	CSER costs (C_{CSER})
Direct	1,25	1,2266	1,2348
Indirect	1,5	1,0000	1,0000
Mixed	1	1,0114	1,0226

Table 2.14. Parameters calculation matrix for different company distribution "Sumyproduct-2005" LTD

Options for the distribution of goods	Criteria for the distribution of goods		
	Time (T)	Economic costs (C_{econ})	CSER costs (C_{CSER})
Direct	1,25	1,0000	1,0416
Indirect	1,5	1,0010	1,0000
Mixed	1	1,0194	1,0602

The results of the calculations (Table 2.15) indicate that the existing variant of the distribution of goods "DTS-Kharkiv" LTD is not optimal in terms of the ratio of time, economic and environmental components, but the mixed distribution of goods is optimal, because it provides the minimum value of the calculated criteria.

Table 2.15. Selection of the option of distribution of goods of "DTS-Kharkiv" LTD according to the criteria of choice and decision making

Options for the distribution of goods	Selection criteria			
	Laplace's criterion	Wald's criterion	Sevidge's criterion	Hurwitz's criterion
Direct (actual)	1,0972	1,2500	0,2500	1,1250
Indirect	1,1670	1,5000	0,4990	1,2500
Mixed (optimal)	1,0265	1,0602	0,0602	1,0301

We make similar calculations to determine the optimal variant of the distribution of goods on three criteria: time, economic costs, CSER costs for the company "Masterproduct-2005" LTD (Table 2.16).

Table 2.16. Selection of the option of distribution of goods of "Masterproduct-2005" LTD according to the criteria of choice and decision making

Options for the distribution of goods	Selection criteria			
	Laplace's criterion	Wald's criterion	Sevidge's criterion	Hurwitz's criterion
Direct	1,2371	1,2500	0,5000	1,2383
Indirect (actual)	1,1667	1,5000	0,2348	1,2500
Mixed (optimal)	**1,0113**	**1,0226**	**0,2266**	**1,0113**

Thus, according to the proposed methodological approach, the variant used for indirect distribution of goods through an intermediary for "Masterproduct-2005" LTD is not optimal because it does not provide the minimum value of the calculated criteria. It is optimal to have a mixed distribution of goods in terms of the ratio of time, economic and environmental components (the most acceptable in three parameters), which is confirmed by appropriate calculations.

We make similar calculations to determine the optimal variant of the distribution of goods on three criteria: time, economic costs, costs of CSER for "Sumyproduct-2005" LTD (Table 2.17).

The "Company 3" used version of mixed distribution of goods is optimal by the selected criteria, because in this variant the values of the calculated criteria are minimal.

Table 2.17. Selection of the option of distribution of goods of "Sumyproduct-2005" LTD according to the criteria of choice and decision making

Options for the distribution of goods	Selection criteria			
	Laplace's criterion	Wald's criterion	Sevidge's criterion	Hurwitz's criterion
Direct	1,2071	1,2500	0,5000	1,2156
Indirect	1,1667	1,5000	0,1903	1,2500
Mixed (actual and optimal)	**1,0081**	**1,0172**	**0,1811**	**1,0086**

The proposed scientific and methodological approach to the choice of optimal from the point of view of the combination of social, environmental and management criteria (ESG criteria) of the option of distribution of goods allows to formalize the relationship between the option of delivery of goods and costs of CSER companies using elements of mathematical modeling, namely the decision criteria of uncertainty.

Winning customer trust is becoming a must and an important part of the corporate strategy of the world's leading companies. At the same time, loss of trust between partners can lead to irreparable financial losses and loss of goodwill for both parties. Manufacturing and trading companies strive to meet the best global standards in a competitive environment, and therefore pay great attention to CSER. This tendency favors the state and society, contributing to solving some of the key environmental issues, establishing compliance with the norms and standards of the global economy, taking into account the environmental component, improving the standard of living and safety of the population and etc.

2.3 Formalization of the dependency between CSER, ESG criteria, transparency of financial sector companies, and their financial efficiency

Many companies that operate in the financial sector run their business in accordance with the principles of corporate social and environmental responsibility. In most cases, this concerns to commercial banks and insurance companies, regardless of ownership type.

The basic feature of corporate social and environmental responsibility (CSER) of banks is that, on the one hand, banks are under control of the National Bank and strictly comply with its legislation, and on the other, they have all the opportunities to implement the CSER principles in their development strategies. In particular, during the last years, the state-owned JSB “Ukrgasbank” positions itself as an eco-bank in the Ukrainian market of banking services. It provides not only standard services but also offers the lending of environmentally oriented projects, supporting innovative environmentally responsible small and medium-sized enterprises. Even more interesting is the example of neighbouring Poland, where there is Bank Ochrony Środowiska that specializes in supporting environmental protection and has been successfully operating for over 25 years. The main slogan of bank is "Ecology is our mission and passion".

The principles of corporate social and environmental responsibility are equally important for insurance companies. At the same time, many of them are transnational, so it forces them to follow the international vector and implement in their activities the global Sustainable Development Goals that were endorsed in 2015 by United Nations General Assembly. From another point of view, trust, long-term cooperation, and stability are still top priorities in the insurance industry, that correlate with the main principles of socially responsible companies.

Being financially and environmentally responsible is vital for financial institutions like for other sectors of the economy, firstly from a marketing side. The promotion of new products and services are more successful if financial institutions do it in parallel with actively taking part in supporting and organizing environmental activities and social projects.

Many scientists have researched how effective socially and environmentally responsible behaviour of financial sector companies in terms of the business they conduct. The results of the experiments and the modelling shows the importance of establishing the principles of corporate social and environmental responsibility for the operating activity of financial institutions and taking them into account during the development of strategic documents.

Corporate social responsibility in banks has been properly investigated by B. Sholtens (2009), K. Djalilov et al. (2015) and others.

B. Sholtens (2009) has analysed the activities of more than thirty social responsible banks operating in Europe, Asia, and North America. It was mathematically approved that there is a direct and strong relationship between corporate social responsibility and the size of a financial institution, as well as its financial performance. During the study, the banks' reports on sustainable development, corporate social responsibility, integrated reports and codes of ethics were analysed.

Improvements in some banks' financial results due to the increase in CSR activity have been investigated by M. Wu and C-H. Shen (2013). It is such indicators as return on equity, net interest income, return on assets, and non-interest income for more than 160 banking institutions in 22 countries.

While some scientists such as Ch. Shen, M. Wu, T.Chen (2016) carry out a global analysis of the international banking system by examining the impact of CSR on banks' income-generating and reducing of non-performing loans, many scholars devote their studies to banks' CSR specificities in certain countries. For example, P. Goyal and U Chanda (2017) explored the CSR features of Indian banking system.

M. Mocan et al. (2015) researched the impact of CSR measures on Romanian banking activities. P. Polychronidou et al. (2014) investigated the peculiarities of socially responsible banks in Greece. A. Akin and İ. Yilmaz (2016) identified CSR drivers on the example of the Turkish banking sector. T. Siueia, J. Wang, and T. Deladem (2019) conducted a comparative analysis of CSR and financial efficiency of banks in Sub-Saharan Africa. The banking sector of the Czech Republic has been studied by J. Paulik et al. (2015).

The multi-stage study of the interconnection between the socially oriented and financial components of banking institutions activities was done by S. Ahmed et al. (2012). The first stage was devoted to a survey on evaluating the effectiveness of socially and environmentally oriented actions in banks that were chosen. As a result, all banking institutions were divided into two categories – socially neutral and socially active. At the second stage, the financial position of banks represented different categories was analysed. According to the comparison of EPS, ROA, ROE, P/E ratio of banks in these categories, it was concluded that socially active banks have a significant advantage over socially neutral according to financial efficiency indicators.

The contribution of corporate social and environmental responsibility of banking institutions to their traditional operating activity is crucial. The results of such investigations are given in the works of M. Jeucken and J. Bouma (1999), O.

Weber (2005). All they say about setting up a benchmarking system in the context of the idea of sustainable development. These indicators form the landmarks for CSR development and for ensuring the financial stability of banking institutions.

L. Šlahor and M. Barteková (2017) worked on the exploring of 22 insurance and 1 reinsurance companies in Slovakia. The authors proved that these insurance companies adhered to the ten principles established by the United Nations Global Compact, in particular in the areas of human rights, labour, the environment, and anti-corruption.

The Indian experience of accepting corporate social and environmental responsibility is fascinating. The activities of Indian companies and the relationship between CSR and financial activities are explored in detail by S. Shetty and R. Sundaram (2016). The researchers analysed the firms' activities after the implementation of the law on the obligation for economic entities to spend on corporate social and environmental responsibility in 2014. On top of that, it was found that there is a positive and significant relationship between financial efficiency and the level of companies CSER.

In general, there are four main steps to assessing the relationship between CSER and the transparency of financial sector companies and their financial efficiency:

1) the choice of the factor variable and the parameters that determine it;
2) the choice of the result variable and the parameters that determine it;
3) conducting correlation analysis;
4) interpretation of the results.

An empirical study of the relationship between CSER and the transparency of financial sector companies and their financial efficiency has been conducted on the example of European and Ukrainian companies based on aggregate data. It should be noted that the total number of CSER companies' reports, the number of financial sector companies' CSER reports, and the share of these companies' CSER reports were chosen as a factor variable for Ukraine at the first stage of the methodology. As for the EU, there were selected the last two indicators. The lack of indicators characterizing the factor variable for the Ukrainian financial sector demonstrates low transparency in financial sector companies' activities regarding CSER. These indicators were taken from the Global Reporting Initiative (GRI) for the period from 1999 to 2016 (table 2.18).

CSER reports of financial sector companies in Ukraine and the EU are presented in Financial Services chapter, and for the EU companies, it is quite significant along with the following sectors as Food and Beverage Products, Household Products, Metal Products, and Other.

It should be pointed out that Directive 2014/95/EU adopted in 2014 directly require banks, insurance companies and other financial sector companies that meet the criteria of a large and socially significant report on CSER. Similar requirements appeared in Ukrainian legislation in 2017. However, it has not had an impact on the data set under the study so far since financial sector companies' CSER reports will only be published in 2018-2019.

As the methodology involves the study of financial sector efficiency at an aggregate level, it has been selected more traditional indicators for illustrating the result variable at the second stage of methodology for the EU. They are the following: bank capital to assets ratio, domestic credits provided by financial sector (% of GDP), market capitalization of listed companies (% of GDP) and the total value of a number of shares outstanding (% of GDP). All data from the World Bank World Development Indicator database (Table 2.19).

Table 2.18. Indicators that characterize the transparency in financial sector companies in case of CSER in Ukraine and the EU (factor variable) during 1999-2016

Year	EU			Ukraine		
	The total number of companies' CSER reports	The number of FS companies' CSER reports	The share of FC companies' CSER reports, %	The total number of CSER companies' reports	The number of FS companies' CSER reports	The share of FC companies' CSER reports, %
1999	6	0	0,0	0	0	-
2000	22	2	9,1	0	0	-
2001	57	8	14,0	0	0	-
2002	58	5	8,6	0	0	-
2003	78	7	9,0	0	0	-
2004	147	20	13,6	0	0	-
2005	210	38	18,1	1	0	0,0
2006	288	50	17,4	1	0	0,0
2007	405	73	18,0	3	0	0,0
2008	547	97	17,7	1	0	0,0
2009	758	112	14,8	4	0	0,0
2010	961	136	14,2	7	1	14,3
2011	1245	159	12,8	8	1	12,5
2012	1492	168	11,3	10	2	20,0
2013	1645	208	12,6	9	2	22,2
2014	1884	238	12,6	3	1	33,3
2015	1901	246	12,9	8	0	0,0
2016	1990	271	13,6	8	1	12,5

Source: Database of GRI (Global Reporting Initiative, 2017)

Table 2.19. Indicators that characterize the EU financial sector efficiency (result variable) during 1999-2016

Year	Bank capital to assets ratio (%)	Domestic credits provided by financial sector (% of GDP)	Market capitalization of listed companies (% of GDP)	The total value of a number of shares outstanding (% of GDP)
1999	..	..	96,22667	64,75381
2000	..	..	96,38866	100,5322
2001	..	114,7775	77,08801	83,00316
2002	..	115,2338	58,0141	50,8279
2003	..	117,9963	66,25284	48,42447
2004	..	119,95	67,86528	53,06835
2005	..	124,9507	69,42076	53,63146
2006	..	131,8831	86,4259	75,252
2007	..	141,4048	86,29329	102,0123
2008	5,865347	150,8304	39,48409	78,30684
2009	6,406595	157,5588	51,38649	56,39265
2010	6,118129	168,2282	50,75726	56,94728
2011	6,181669	168,2964	39,34919	51,1986
2012	6,657279	167,559	48,97844	44,28426
2013	7,208622	155,7331	58,704	39,22488
2014	7,310866	155,2831	52,34978	50,15676
2015	7,790802	149,6673	..	..
2016	7,587491	150,7658	..	..

Source: World Bank WDI (World Bank Group, 2017)

It should be stressed that it was impossible to achieve the comparability of full indicators since the real effective exchange rate (2010 = 100) is calculated only for certain countries and not for the communities. At the same time, indicators such as market capitalization of listed companies (% of GDP) and the total value of a number of shares outstanding (% of GDP) for Ukraine have a limited publication period (Table 2.20).

Table 2.20. Indicators that characterize financial sector efficiency of Ukraine (result variable) during 1999-2016

Year	Bank capital to assets ratio (%)	Domestic credits provided by financial sector (% of GDP)	Market capitalization of listed companies (% of GDP)	The real effective exchange rate (2010 = 100)	S&P Global Equity Indices (annual, %)	The total value of a number of shares outstanding (% of GDP)
1997	..	17,0831	..	136,806	..	..
1998	..	24,56649	..	125,0228	-82,25	..
1999	..	25,22353	..	98,53393	20,2	..
2000	..	23,82241	..	97,77344	75,15237	..
2001	..	24,21922	..	108,0753	-36,2955	..
2002	..	28,11338	..	103,9662	26,68	..
2003	..	33,15363	..	95,58851	40,3	..
2004	..	31,68865	..	93,58283	170,3	..
2005	11,89939	33,27561	..	103,2966	52,82029	..
2006	12,46581	45,73607	..	107,6029	48,64664	..
2007	11,57931	61,11258	..	108,363	112,219	..
2008	12,85591	95,07743	..	117,4074	-82,1899	..
2009	13,09968	103,8422	..	97,95476	31,07647	..
2010	14,63005	94,17385	28,59826	100	53,84306	2,087078
2011	14,76006	87,27411	15,72328	99,42858	-36,2945	0,721808
2012	15,03099	87,86506	..	101,4948	-4,06373	0,355498
2013	15,05637	95,01749	..	97,95278	-21,267	0,179805
2014	11,22766	108,4601	..	76,70064	-51,5046	0,091533
2015	8,016476	85,1933	..	71,41589	1,457742	..
2016	9,781222	78,70657	..	71,04677	27,80014	..

Source: World Bank WDI (World Bank Group, 2017)

At the third step of the working out the method, correlation coefficients between the studied factor and result variables were calculated (Table 2.21) and their statistical significance was estimated.

Table 2.21. Correlation coefficients between transparency of financial sector companies (FS) and efficiency indicators in the EU, authors' calculations

Indicator	Period	The number of FS companies' CSER reports	The share of FC companies' CSER reports, %
Bank capital to assets ratio (%)	2008-2016	**0,94**	**0,52**
Domestic credits provided by financial sector (% of GDP)	2001-2016	**0,67**	0,07
Market capitalization of listed companies (% of GDP)	1999-2014	**0,64**	0,29
The total value of number of shares outstanding (% of GDP)	1999-2014	**0,44**	0,19*

The correlation analysis results show the close and sufficiently close influence of the number of FS companies' CSER reports in the EU on the bank capital to assets ratio, domestic credits provided by financial sector, market capitalization of listed companies and the moderate impact of this indicator on the total value of number of shares outstanding. Relatively, there is a moderate impact of the share of FC companies' CSER reports in the EU on the bank capital to assets ratio, which is explained by a significant share of banking institutions in the system of financial sector entities (Table 2.22).

In Ukraine, despite the low transparency in CSER of financial sector companies and the low share of CSER reports of these companies, the impact of the factor variable on the result variable can be considered as moderate.

Table 2.22. Correlation coefficients between transparency of financial sector companies (FS) and efficiency indicators in Ukraine, authors' calculations

Indicator	Period	The number of FS companies' CSER reports	The share of FC companies' CSER reports, %	Indicator
Bank capital to assets ratio (%)	2006-2016	0,206	**0,504**	0,311
Domestic credits provided by financial sector (% of GDP)	2001-2016	**0,436**	**0,424**	**0,542**
The real effective exchange rate (2010 = 100)	1999-2016	**0,434**	0,174	0,378
S&P Global Equity Indices (annual, %)	1999-2016	0,138	0,313	**0,425**

A detailed analysis of the CSER key areas of Ukrainian banks as prevailing financial sector entities is presented in Table 2.23.

As can be seen, most of the financial institutions that were investigated report on corporate responsibility indicators such as the increase of financial literacy of the population, development of the business environment, risk management and more. However, the reporting period of these banks is unsatisfactory and the scale of disclosure of CSER by other banking institutions is negligible compared to EU countries.

Table 2.23. CSER key areas of Ukrainian banks and their reporting activity

Bank	CSER key areas	Year					
		2018	2017	2016	2015	2014	2013
The First Ukrainian International Bank	Corporate responsibility, development of business environment, increase of financial literacy of the population, improvement of bank products and services quality	*	*	*	*	*	*
JSB "Ukrgas-bank"	Corporate responsibility, development of business environment, increase of financial literacy of the population, improvement of bank products and services quality	-	*	*	*	*	*
Ukreximbank	Corporate responsibility, development of business environment, increase of financial literacy of the population, improvement of bank products and services quality	*	*	*	*	*	*
PrivatBank	Corporate responsibility, development of business environment, increase of financial literacy of the population, improvement of bank products and services quality, employment, environmental protection, education, charity	*	*	*	*	*	*
Ukrainian bank for reconstruction and development	Banking system, capitalization, consolidation, resource potential, stability, lending, problem assets, risk management, corporate governance, availability of services	*	*	*	*	*	*
OJSC "Rodovid Bank"	Banking system, stability, lending, problem assets, risk management	-	*	*	*	*	*

Furthermore, the results of the correlation analysis based on data on disclosure by financial sector companies in Ukraine and the EU (GRI database) and aggregated indicators of its financial efficiency (World Bank database) for 1999-2016 show that there is a close relationship between CSER of financial sector companies and their financial efficiency in the EU and a moderate in Ukraine. These outcomes are the basis for the development of measures that increase the transparency of the financial sector in Ukraine and provide the CSER of its institutions in accordance with European practice.

2.4 Formalization of the dependency between CSER, ESG criteria, transparency of public sector companies and their financial efficiency

Particularly interesting is the corporate social and environmental responsibility of public sector companies. On the one hand, these organizations should be one of the first that work in accordance with sustainable development principles, and meet Ukraine's international commitments. On the other hand, the vast majority of state-owned companies are still characterized by out-dated management practices, lack of systemic changes in corporate strategic vision.

Scientists have researched various aspects of CSER of public sector companies. Thus, A. Matei and C. Drumasu (2015) explore issues of corporate social innovation in the public sector and propose to use the corporate social innovation management model as an alternative to the traditional system of public administration.

G. Halkos and N. Tzeremes (2014) investigated the transparency in the public sector of the economy and worked on the identifying the relationship between indicators of the state's environmental policy with the transparency of the public sector.

G. Günay and S. Apak (2014) made the comparison of corporate management strategies of state and non-state enterprises in the case of Turkey. Scientists have found that the corporate governance principles of only three small and medium-sized state-owned companies and none of the non-state did not comply with Turkey's normative documents regarding stakeholder engagement.

A great number of studies, including the scientific work of T. Lepikhina and E. Mokhova (2012), are devoted to evaluating the quality of CSER and the transparency in the implementation of sustainable development initiatives of enterprises. Also, scholars proposed to evaluate the company's internal social responsibility index using the modified SPACE matrix. O. Berezina (2012) describes in her investigation the methodology of CSER rating of a corporation in the area of labour relations. An overview of different approaches to companies' CSER assessment is given by V. Yevtushenko (2013). For a qualitative valuation of social investment, the author proposes three groups of criteria. They are the institutional formation of social policy, the accounting system of social programs and activities, as well as the complexity of the social investment process.

The concept of transparency in corporate reporting is introduced in detail by R. Eccles et al. (2001). It is emphasized that it is important to report not only by the company manager but also it has a reason to pay attention to the other stakeholders.

Qualitative characteristics of corporate reporting in the context of ensuring transparency and disclosure of business entities as participants in tax relations have been studied by N. Shalimova and H. Kuzmenko (2016). The authors note that the content of financial and non-financial reports of companies does not always meet the needs of consumers of these reports.

Some surveys are devoted to the issues of socially and environmentally responsible activity of public utilities and municipalities. Mullins A. and Robby Soetanto R. (2010) have described the relationship between major groups in the community and the enhancement of community stability through social responsibility.

Strength of municipalities in Spain, according to the level of disclosure on sites and the key points of the Global Reporting Initiative, was explored by F. J. Alcaraz-Quiles et al. (2017). The results show that two-thirds of the information flow is in compliance with the GRI reporting principles and that environmentally-friendly communities are publishing more information about sustainable development on their sites.

Sepúlveda J. (2013) researches the ecological problems of water consumption in the Basque Country. The scientist has proved that the environmentally responsible activity of regional public organizations has plenty of opportunities to solve a number of local and global problems.

Many studies show that transparency should be a key element of public-sector activity. And if financial and non-financial reporting for an organization in the European Union has become a mandatory norm long ago, Ukraine is just beginning its path. Ensuring the company's transparency is important not only as a global benchmark according to Sustainable Development Goals but also locally for stakeholder requirements and ESG criteria. Transparency is also vital given the need for a full, timely, accurate understanding of the situation in order to take managing and investment decisions as well as stakeholder risk assessments in time. This is especially crucial during local and global financial crises (Asian 1997-1998, Global 2007-2009), numerous corporate scandals and bankruptcies (Lehman Brothers, AIG, Enron, Parmalat, World.com and others).

Transparency of state-owned companies in the context of their financial reporting is an integral indicator of the openness of an economic entity, which reflects adequate on consumer requirements, the degree of disclosure and availability of information about its current state and prospects (Shulga, 2014). At the same time, not merely the financial but also any companies' report (including the ones published on the official website and in the media) should be transparent.

In addition, the integration of non-financial CSER component in the companies' reporting may increase its transparency. If company reporting on a multitude of indicators from different sustainable development areas (economic, social, environmental) over specified periods of time, it creates a transparent information and communication field to cope with key stakeholders and focus on getting benefits of it. In this case, P. Healy et. al. (1999) gave the complete definition of transparency in reporting that is identified as a mechanism of reducing information asymmetry between a company and stakeholders.

However, the evaluation of transparency in reporting is not fully studied field in the context of CSER disclosure and activity in the area of sustainable development of state-owned companies. Thus, conducting a comparative and content analysis of modern approaches to determining the transparency in reporting from the side of its impact on the financial performance of companies is certainly relevant.

The systematization of available methodological approaches to assessing the transparency in reporting allows highlighting the key ones: 1) rating of companies' initiatives and corporate reporting on sustainable development by information and rating organizations; 2) evaluation of the level of transparency in reporting from the side of foreign practice; 3) estimation of the level of transparency in reporting from the face of domestic practice.

The level of the transparency and quality of CSER disclosure of a particular company may be identified by independent information and analytical agencies that integrate companies in such prominent index families of sustainable development as Dow Jones Sustainability Indexes (DJSI published by Dow Jones Indexes, STOXX Limited and the SAM group), S&P 500 Environmental & Socially Responsible Index, FTSE4Good Global Index, MSCI World ESG Index, NASDAQ OMX CRD Global Sustainability Index, the Ethibel Sustainability Index (ESI) Excellence Global (Forum ETHIBEL) and others.

For example, Robeco SAM's corporate sustainability assessment methodology covers 3,000 of global listed companies, 2,500 of which are included in DJSI World according to the level of capitalization. Two-tier RobecoSAM assessment technique of sustainable development provides in-depth analysis of economic, environmental and social factors using 80-120 questions about corporate governance, transparency in reporting regarding sustainable development.

Transparency according to the RobecoSAM methodology is primarily about ensuring confidence and reliability for investors and other stakeholders concerning supply chain management, while evaluating the sustainability reporting focuses on the criteria of completeness, scale, disclosure of company's environmental and social measurement in time, along with its independence quality improvement (RobecoSAM’s Corporate Sustainability Assessment Companion, 2019).

Despite the establishment of the CSER network in Ukraine, today some studies concerning the transparency in different economic agents, companies of the private and public sectors, banks are conducted (Table 2.24). Analytical researches of "Credit-Rating" and S&P indicate that Ukrainian banks have lack information transparency compared to international practice. Data on operating and financial activities are the least fully disclosed. CSER reporting has been mentioned in the methodology of the all-Ukrainian rating journal "GVardia", where a block of evaluation criteria is devoted to "Social report as a tool of dialogue with society". Among these criteria, the relevance of non-financial information of the company to the generally accepted GRI Sustainable Development Guide plays a crucial role. That makes the methodology representative concerning transparency. However, its relevance and regularity of publication are unsatisfactory.

The only regular methodology that takes into account the transparency in companies' CSER, in general, is the methodology of the "Centre of Corporate Social Responsibility Development".

Company can obtain a maximum score of 40 % in the Index of Information Transparency and Accountability by the criterion "reporting" if it compiles its non-financial report in an integrated format according to the IIRC methodology or GRI 4.0, or with its elements that show up-to-date methodology and compliance with its current trends in the CSER standardization. Moreover, the methodology is universal, apart from the real sector, in the form of a separate index of information transparency and accountability. It covers state-owned companies and banks.

Table 2.24. Overview of available methodological approaches to assessing the transparency in corporate reporting in case of domestic practice

Name	Organizer	The scale of study	Period	Methodology	The results of the last study
Ranking of Ukrainian banks transparency	Credit-Rating Agency "Credit-Rating", the international rating agency Standard & Poor's (S&P)	30 largest banks in Ukraine	2008, 2010, 2011, 2012	Valuation of bank sites in the context of the ownership structure and corporate governance; operating activities and financial reporting; management	The leader is PrivatBank with an average level of transparency among all banks 56.6 %
Index of information transparency and accountability of Ukrainian state-owned companies	Centre of Corporate Social Respon-sibility Develop-ment	60 largest state-owned compa-nies in Ukraine	2014-2015	Valuation of state-owned companies' sites in the context of content, navigation, strategy and reporting	Almost half of the companies (26 out of 60) have higher than average the level of CSER disclosure. The leader is the state-owned enterprise NNEG "Eergoatom"

Index of information transparency and accountability of Ukrainian companies	Centre of Corporate Social Responsibility Development	Top 100 Forbes Rating Companies Top 200 Largest Companies in Ukraine by 18 Industries	2011-2015	Valuation of companies' sites in the context of reporting, navigation, and availability	The leader is ArcelorMittal Kryvyi Rih
Rating of openness and activity of companies in CSER	All-Ukrainian rating journal "GVardia"	41 leading Ukrainian companies from the rating "GVardia-500"	2011-2013	Research of social reports and questionnaires of companies in case of the CSR disclosure in the areas of social reporting, systematic CSR, openness	The leader is DTEK

Source: compiled by authors based on organizations' information

The results of the use of this methodology and the calculation of indexes of transparency and accountability demonstrate the need in corporate reporting ratings. Thus, the average level of disclosure on the websites of state-owned companies by the "Strategy and Reporting" parameter is 16.7 % out of the possible 30 %. However, there is no information on CSER priorities, CSER-reports and business goals. Compared to state-owned companies, the transparency in real-sector reporting, including CSER reporting, is slowly increasing. At the same time, the average level of transparency among other companies is only 21.5 % (Center for CSR Development, 2015). These methods for evaluating the transparency of Ukrainian companies play an important role in the formation of benchmarks in the business environment, but they must meet the requirements of regularity, versatility and compliance with current trends in the CSER standardization in reporting.

An applied study of the impact of transparency in reporting of Ukrainian companies on their financial efficiency with using the results of the "Centre of Corporate Social Responsibility Development" methodology is proposed to be carried out on the example of state-owned companies. In the context of the implementation of sustainable development initiatives (UN Sustainable Development Goals, "Europe-2020" Development Strategy, Sustainable Development Strategy "Ukraine-2020"), anti-corruption activities, dissemination of transparency in reporting (IPFSD, OECD, IOSCO, ESMA, EITI) state-owned companies are important for structural transformation in the economy.

Their special economic status and strategic importance determine the exceptional weight of these companies as exemplars of virtuous corporate behaviour, the implementation of CSER policy, the formation of dialogue with society and other stakeholders on ensuring intergenerational equality, economic well-being, social justice and reducing the environmental burden.

The communication basis for demonstrating progress in completing the tasks by state-owned companies is, firstly the reporting of companies, which should include non-financial information on environmental and social areas of sustainable development and an audit report that confirms its reliability. Together, they ensure the transparency of state-owned companies.

Moreover, within the framework of Ukraine's cooperation with the IMF and the World Bank, there was formed "the Strategy for improving the efficiency of public sector economic entities activity" with the adoption of "Decree of the Cabinet of Ministers of Ukraine No 662 from 27.05.2015" (Cabinet of Ministers of Ukraine, 2015). One of the key areas of this Strategy is to improve corporate governance practices and increase transparency in state-owned enterprises. Consequently, there was implemented "Procedure for the publication of information on the state unitary enterprises and companies activities, in the authorized capital of which more than 50 % of shares owned by the state, as well as companies, 50 % or more of shares owned by companies and with 100 % owned by the state" (Decree of the Cabinet of Ministers of Ukraine No 1067 from 09.11.2016) (Cabinet of Ministers of Ukraine, 2016). According to this order, state-owned companies should publish reports quarterly and annually (auditor-confirmed) on their websites.

The unprofitability of the largest state-owned companies (in 2015, the aggregate net loss was 53.0 billion of hryvnias (Ministry of Economic Development and Trade of Ukraine, 2016)) does not allow using the potential and capabilities of public companies as a driving force in structural transformation of the economy and moving it towards the sustainable development.

The study of the impact of transparency on the financial efficiency of state-owned companies in Ukraine is relevant for the following reasons:

- the majority of state-owned enterprises of Ukraine are public joint-stock companies and companies-issuers of securities, which operate on the market, have to present the reports openly;
- the asset value of most public companies managed by the Ministry of Economy and Development of Ukraine is much more than the value set by Directive 2013/34/EU which is 20 million euros for large companies;

- the importance of transparency of state-owned companies in terms of ensuring their investment attractiveness, the efficiency of management and financial and economic activity is conditioned by their strategic significance for the economy and monopoly position in the markets.

As a whole, the main problem of the reporting system of Ukrainian state-owned companies (we do not take into account some leaders) is that the companies' mechanisms of disclosure and its confirmation by independent auditors are developing and at the beginning stage of adaptation to the European accounting legislation.

Specific documents aimed at increasing the transparency of state-owned enterprises are the Extractive Industries Transparency Initiative (EITI), which has been implemented in 50 countries (including in Ukraine since 2013), Regulation (EU) No 995/2010 from 20 October 2010, which sets out the obligation of operators in the timber market according to the EU's FLEGT Action Plan (Forest Law Enforcement, Governance and Trade) established in 2003 and focus on reducing illegal timber production and enhancing sustainable and legal forest resources management.

In order to increase the transparency and competitiveness of state-owned enterprises and to implement the State-Owned Enterprises Governance Reform Strategy and in accordance with the Law of Ukraine "On Amendments to Some Legislative Acts of Ukraine on the Management of State and Communal Property" from 02.06.2016 No.1405-19", state unitary companies are obliged to publish audited annual financial statements and the independent external auditor's report by April 30.

At the same time, this list of information takes into account only partially the requirements of the European Directives regarding disclosure of non-financial and diversified information, submission of the management report, corporate governance report, report on payments to the government. The question of conducting a statutory audit and the criteria for selecting state-owned auditors is also difficult. Generally, this has a negative effect on the level of transparency of most state-owned companies, despite deliberate government efforts to increase it.

This is confirmed by the analysis of transparency index of state-owned companies in Ukraine, made by the Centre of Corporate Social Responsibility Development in 2014-2015 according to a common methodology of the Center and the international company Beyond Business (Israel) by components of content, strategy and reporting and navigation that focus on companies' perceptions of CSER praxis (Center for CSR Development, 2015).

According to the Centre "CSR Development" methodology, there were evaluated 50 companies with the largest assets as of 31 December 2014 (CMU Order "On Approval of the List of Public Sector Enterprises with the Largest Assets" as of 27 May 2015, No. 600-r), state-owned banks, cultural and sports institutions and other companies that were included in the TOP-100 largest state-owned enterprises of Ukraine for 2013 and 9 months of 2014 year (Ministry of Economic Development and Trade of Ukraine). In total, 60 companies were assessed (Center for CSR Development, 2015).

According to the study, the level of transparency in Ukrainian state companies is 21.2 points out of 100. Herewith, about half of the companies (26 out of 60) have a higher than average level of CSER disclosure. Key assessment parameters are content, strategy and reporting, and navigation. However, despite the fact that the level of transparency of the Top-10 state-owned companies is 42 %, including "Content" – 32.3 % (19.7 points out of 61 possible), "Strategy and Reporting" – 50.6 % (15.2 out of 30) and "Navigation" – 83.3 (6.6 out 9) the average level of CSER disclosure on websites of state-owned companies by the main parameters of assessment is rather low (Center for CSR Development, 2015).

The average level of "Content" disclosure that include such non-financial information components as the availability on a company's website of detailed information relate to corporate social responsibility: corporate governance, employment, human rights, environmental policy, fair operating practices, relationships with stakeholders and community development is 16.3 % (9.98 points out of 61 possible). More than half of the companies (35) have a relatively low level of CSER disclosure. The average level of disclosure on the websites of state-owned companies regarding "Strategy and Reporting" parameter, which includes the components of disclosing business and CSER strategies, financial reporting and sustainability reporting on the company's website is 16.7 % (5.06 points out of 30 possible) (Center for CSR Development, 2015).

Transparency indices of Ukraine's largest state-owned companies are shown in Table 2.25.

There is the results of the another investigation of the transparency of state-owned companies (Transparency International Ukraine, 2017), which confirms the need to make improvement in disclosure of audited CSER financial statements and non-financial information, as well as the disclosure of anti-corruption programs, codes of conduct, compliance policies, corporate governance reporting, and report on payments to government.

Table 2.25. Index of Transparency of the Top-5 State-Owned Companies in Ukraine according to the Centre "CSR Development" Methodology

Top 5 state-owned companies according to the level of disclosure by the "Content" parameter		Top 5 state-owned companies according to the level of disclosure by the "Strategy and reporting " parameter	
The state-owned enterprise National Nuclear Energy Generating Company "Energoatom"	36	PJSC "Ukrhydroenerho"	26
OJSC "Zaporizhiaoblenergo"	25	The state-owned enterprise "NEGC "Energoatom"	23
State territorial-sectoral association "Southwestern Railways"	24	The state-owned enterprise "Ukrkosmos"	20
PJSC "Centrenergo"	22	OJSC "Oschadbank "	20
The state-owned enterprise "Ukrainian Sea Ports Authority"	21	PJSC "Centrenergo"	13

Source: Compiled by authors based on (Center for CSR Development, 2015)

Regarding CSER strategies and non-financial reporting, the level of their disclosure is critically low. Only 4 companies presented their CSER strategies and priorities (the state-owned enterprise National Nuclear Energy Generating Company "Energoatom", State Food and Grain Corporation of Ukraine, PJSC "Ukrhydroenerho", and PJSC "Centrenergo"). None of the sites contained a CSER report, however some companies started to prepare Reports on the enterprises activity in accordance with the order of the Ministry of Economic Development and Trade of Ukraine from 11.02.2015 No.116 and place such information on the company's site (PJSC "Ukrhydroenerho", PJSC "Centrenergo", the state-owned enterprise "Ukrkosmos", and the state-owned enterprise NNEGC "Energoatom") (Transparency International Ukraine, 2017).

Analysing the level of CSER disclosure in these reports in the context of the principles established by Directive 2014/95/EC, it should be noted that the level of disclosure on such components as "Community Development and Support", "Human Rights" and "Ecology" is very low (Center for CSR Development, 2015).

No companies, whose disclosure was evaluated, provided information regarding:

- policies on salaries, bonuses, leadership bonuses ("Corporate governance" component issues);
- information on employment policies for people with disabilities, respect for human rights ("Corporate governance" component issue);
- the results of the environmental audit and fines ("Ecology" component issue).

Other CSR issues are only given on websites by some companies.

Thus, the question of providing transparency on reporting by state-owned companies as a way of increasing the transparency of their activities remains open and requires the development of methodological support for the CSER formation and disclosure by ESG criteria. Exploring the relationship between the transparency of state-owned companies and their financial efficiency is the issue that needs to be decided further. The author's methodology for investigating the impact of transparency on the financial results of state-owned companies is based on the idea that transparency is a qualitative feature. Therefore, there was used the nonparametric research methods and their confirmation was made on the basis of the Granger causality test.

The key steps and requirements that are set up during the implementation of the developed methodology are the following:

- achievement of comparability of the investigated data and unity of the information base. In this regard, all indicators of financial results of state-owned companies are selected from the database of the Ministry of Economic Development and Trade;
- an illustration of the key indicators of companies' financial efficiency in absolute terms (net income, average annual asset value, EBITDA, net profit/loss) and in relative terms (return on assets and EBITDA), which allow comprehensively characterizing the financial results of the company and their condition as result variables;
- using the index of transparency of state-owned companies as an integral indicator that illustrates not only the disclosure on the economic companies' activity but also their CSER and sustainable development;
- the use of simple non-parametric methods for establishing the relationship between variables, in particular, the Fechner coefficient and Spearman's rank correlation coefficient due to the qualitative nature of the result variable;
- verification of the results based on the Granger causality test.

The results of the Fechner and Spearman coefficients calculations for the analysed population of state-owned companies are presented in Table 2.26.

Table 2.26. Impact of transparency of state-owned Ukrainian companies on their financial efficiency in 2015

Indicators	Indicators of statistical relation	Units	%	Characteristics of the force influence	
				Fechner scale	Chaddock scale
Net income, millions of UAH	Fechner coefficient	0.480	48.0	Moderate, direct	–
	ρ-Spearman	0.510	51.0	–	Significant
	The calculated value of the criterion, t_p	9.337	–	–	–
EBITDA, millions of UAH	Fechner coefficient	0.419	41.9	Moderate, direct	–
	ρ-Spearman	0.483	48.3	–	Moderate
	The calculated value of the criterion, t_p	7.901	–	–	–
Net profit (loss), millions of UAH	Fechner coefficient	0.468	46.8	Moderate, direct	–
	ρ-Spearman	0.533	53.3	–	Significant
	Critical value	13.362	–	–	–
Average annual asset value, millions of UAH	Fechner coefficient	0.568	56.8	Significant, direct	–
	ρ-Spearman	0.678	67.8	–	Significant
	The calculated value of the criterion, t_p	13.432	–	–	–
Return on EBITDA, %	Fechner coefficient	0.570	57.0	Significant, direct	–
	ρ-Spearman	0.905	90.5	–	Very close
	The calculated value of the criterion, t_p	18.895	–	–	–
Return on assets, %	Fechner coefficient	0.674	67.4	Significant, direct	–
	ρ-Spearman	0.812	81.2	–	Close
	The calculated value of the criterion, t_p	16.789	–	–	–

Source: compiled by authors.

The obtained results allow making obvious conclusions about the presence of direct and very close influence of transparency on the financial results of the analysed state-owned companies in 2015. At the same time, the values of Fechner coefficient are completely consistent with the Spearman coefficient that indicates the direct relation. Regarding the impact quality assessment, it varies from significant to very close during the analysed period.

The effect of transparency in reporting of state-owned companies on their financial efficiency and effectiveness is proven by applying scientific and methodological approach using nonparametric methods (Table 2.27).

Table 2.27. Results of the Granger test regarding the determination of the causality between the transparency of Ukrainian state-owned companies and their financial efficiency in 2015.

Indicator	Hypothesis	Year	
		2015	
		F-statistics	P-value
Net income, millions of hryvnias	Transparency is a cause for the change in net income according to the Granger test	6.162	0.0215
	Net income is the a cause for the change in transparency according to the Granger test	0.003	0.958
EBITDA, millions of hryvnias	Transparency is a cause for the change in EBITDA according to the Granger test	2,722	0.114
	EBITDA is a cause for the change in transparency according to the Granger test	3.199	0.088
Net profit (loss), millions of hryvnias	Transparency is a cause for the change in net profit (loss) according to the Granger test	5.09	0.035
	Net profit (loss) is a cause for the change in transparency according to the Granger test	2.111	0.161

Asset value, millions of hryvnias	Transparency is a cause for the change in asset value according to the Granger test	2.379	0.138
	Asset value is a cause for the change in transparency according to the Granger test	1.197	0.286
Return on EBITDA, %	Transparency is a cause for the change in return on EBITDA according to the Granger test	0.661	0.425
	Return on EBITDA is a cause for the change in transparency according to the Granger test	1.27	0.272
Return on assets, %	Transparency is a cause for the change in return on assets according to the Granger test	0.798	0.382
	Return on assets is a cause for the change in transparency according to the Granger test	0.010	0.920

In general, the results of the Granger test indicate that there is the causality between the transparency of state-owned companies and the absolute indicators of their financial efficiency (in particular, net income and net profit (loss). For these indicators, the hypothesis about the impact of transparency on net income and net profit (loss) is suggested since the value of the estimated significance level is less than the critical p = 0.05 level. As for other indicators of financial efficiency of state-owned companies (mostly relative ones), there is not statistically proven a confirmation of the causality between transparency and these indicators. However, in most cases, we have statistical approval that the transparency of state-owned companies is a dependent variable, which is an additional reason for the need to increase it for state-owned companies.

CHAPTER 3 QUANTITATIVE EVALUATION OF SOCIAL, ENVIRONMENTAL AND ECONOMIC EFFECTS ON THE IMPLEMENTATION OF CSER' MECHANISM BY COMPANYS IN DIFFERENT SECTORS OF ECONOMY

3.1 Social, environmental and economic effects of CSER implementation at the company level

Companies that want to stay competitive in modern market conditions should take into account global trends related to environmental and social issues. One of the effective instruments for ensuring socio-economic and environmental local development is the implementation of corporate social and environmental responsibility (CSER) at enterprises, organizations and institutions in the region.

Today, it is not necessary to prove the effectiveness of CSER practice. For example, the results of a quarterly survey that was carried out by Nielsen (Nielsen, 2018) show that over 65 % of consumers recognize companies' social and environmental responsibility as a competitive advantage when they choose a particular goods or service.

CSER not only affects consumers, satisfaction with working conditions but also it is one of the key factors to hold talented professionals. The current generation of workers consciously chooses employers with a CSER priority strategy. Primarily, this is due to the uptaking of the value of human resources by such employers and the investment in social projects to increase satisfaction with working conditions. Employee tenure surveys in the United States (Bureau of Labor Statistics, 2018) show that the average indicators are around 4.2 years per one able-bodied person. An Adoption of an effective CSER strategy can increase the period of working of effective employees. The level of enforcement of CSER strategies in different sectors of the economy is constantly reported by the media. The result can be both an increase in the companies' socio-economic indicators (growth of sales, expanding of consumers, "positive advertising") for socially responsible business and a significant decrease of them (Mondo, 2016).

The implementation of CSER has generally accepted indicators that characterise company, regardless of the field of their activity (Business info, 2019):

- brand awareness: the increase of sales, customer loyalty;
- positive business reputation: allows gaining a competitive advantage for cooperation with suppliers, selection of personnel, work with clients;
- saving of costs: reducing resource using and decreasing waste emissions and discharges that will not only save costs but also minimize negative environmental impact;
- facilitating access to capital: investors are more likely to support a socially responsible business;
- organizational growth: development of new products or services, etc.

For most companies, it is a great challenge to measure the effectiveness of CSER implementation. The evaluation of such indicators as enhancement of image, reputation or consumer loyalty requires considerable efforts as they have qualitative and quantitative characteristics.

The biggest demand among companies for measuring the effectiveness of CSER has:

- survey (questionnaire);
- increase in sales (rise of ratings due to social events);
- volume of investments involved;
- the level of employee tenure;
- reduction of expenditures from CSR implementation.

Today, there are both common international measurement indicators of the CSER implementation (Fig. 3.1) and indicators used in specific fields of activity.

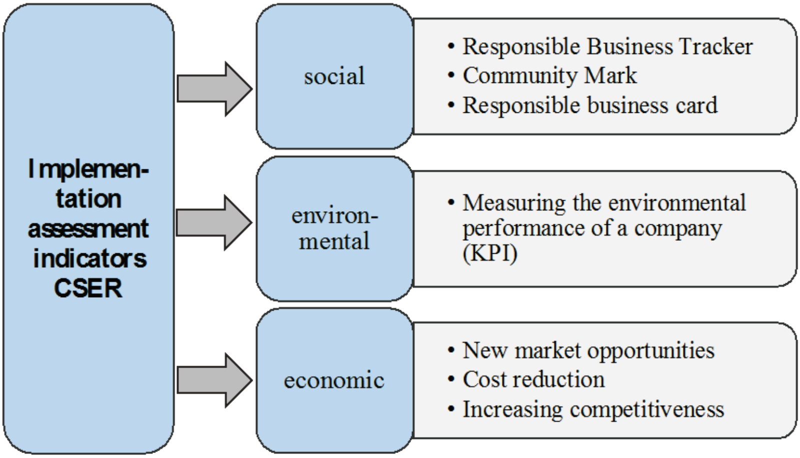

Figure 3.1. International measurement indicators of CSER Implementation (Business info, 2019)

The CSER strategy creates opportunities for companies of different sectors of the economy to implement the requirements of various international standards, which aimed at the complex production modernization and the development of staff. Certification according to international standards opens up completely different opportunities for employers. For example, the international standards ISO 9002:1994 "Model for quality assurance in production, installation and servicing", ISO 9001:2000 "Quality management systems – Requirements", ISO 14001:2004 "Environmental management systems – Requirements with guidance for use", ISO 22000:2005 "Food safety management systems – Requirements for any organization in the food chain", PAS 220, Occupational Health and Safety Assessment Series OHSAS 18001 and others primarily allow entering new markets. Compliance with international standards ensures the satisfaction of consumers with excellent quality of products. The issue of quality at production is crucial. Given the fact that high quality of products cannot be accidental, and control over its compliance is not about correcting and remedying a defect, but it is aimed at preventing its occurrence at all. CSER dramatically changes employers' attitude to the safety and quality of raw materials.

The implementation of these standards means that every employee, regardless of their work position, must adhere to the adopted quality standards by the company. This encourages people to become more aware of their responsibilities and to be more attentive to their functions and to form the core company's corporate principles, which allow receiving not only economic but also social effects.

A special place among CSER's aspects takes the company's reputation among clients and partners. Therefore, enterprises pay much attention to the quality control of the production process that provided by using modern research methods that allow carrying out quality control of both raw materials applied in the production process, and finished products. Not only product quality is an economic indicator that affects pricing, but it also has a social effect on the target audience. In order to achieve excellent product quality and taking into account the consumers' wishes and the future customers' demand, there are different methods of gathering the information: consumer surveys, the study of the dynamics of consumer sympathies, complaints and wishes.

The CSER implementation has a great impact on the company's staff development policy. ISO 26000:2010 is one of the international standards that focuses on company's organizational management. It also identifies other components of social responsibility that are typical for all organizations types: human rights, the environment, socio-economic development of society, good business practices and others. The CSER provides a rational sharing of responsibilities between employees in order to improve the system of preparation and realisation of ideas, proposals, and projects. In addition, such companies often fulfil the Continuous Improvement Process (CIP), which allows the company not only upgrading existing products but also developing new. Organizational management measures help to improve the staff qualification, reduce the possible risks associated with the completion of production modernization projects, and to ensure compliance with state and corporate standards.

Another method that affords to comprehensively assess the CSER impact on the financial and economic company's indicators is the Due Diligence controlling method that provides financial, economic and legal analyses of an enterprise in accordance with international standards. This method covers most of the company activities, checks the reputation and structure of the business, analysing the business plan, assessing the risks, IT level, environmental aspects, etc.

CSER policy is not about one particular activity or the department work, it involves the activity of the whole enterprise. Consequently, the effects of CSER implementation are related to the whole company's activity (Fig. 3.2).

Measuring the effects of CSER implementation can increase the company's value for key stakeholders, raise the effectiveness of decision-making during the enforcement of CSER projects to achieve the company's strategic goal.

Often, CSER is considered as charitable projects but in reality, the social effects of CSER implementation are systemic, but not a one-time. That allows getting long-term social effects.

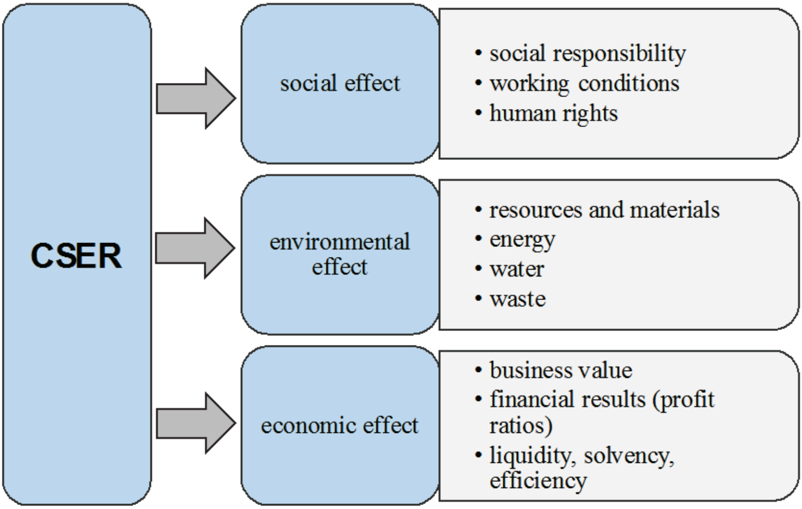

Figure 3.2. Main social, environmental and economic effects of CSER implementation

Ukrainian enterprises and especially business with foreign capital quite frequently combine the most efficient methods accepted by the world community to achieve sustainable development goals. One effective tool is the Integrated Lean Six Sigma Production (IL6S), which combines lean production to reduce costs and forward processes, as well as the Six Sigma quality enhancement method. Mixing these two methods helps to force positive CSER outcomes and give an opportunity to effectively develop and achieve the best global results. The Integrated Lean Six Sigma Production Strategy provides an implementation of company's program; forming a highly-skilled, motivated and self-sufficient working team; eliminating all kinds of losses and 100 % employee involvement in achieving the Strategic Goals (Skalle and Hahn, 2013).

The positive impact of the Integrated Lean Six Sigma Production on the overall CSER company's strategy is doubtless since its focus areas (Table 3.1) have a direct influence on the increase of the CSER level in the company.

Table 3.1 – Impact of Integrated Lean Six Sigma Production on company's CSER

Integrated Lean Six Sigma Production		CSER
focus area	characteristic	
Security (absolutely safe workplace)	- looking on safe behaviour, fixing the occurrence of dangerous behaviour; - attention to accidents and incidents; - conducting an operating risk assessment and development of risk maps understanding; - adhering the equipment locking procedure, etc.	social and environmental effects
Quality (customer satisfaction)	- reducing the number of complaints; - conducting quality inspections; - 100 % compliance with optimal technological parameters, compliance with audits.	social effect
Value (minimum loss)	- reducing the average time between pauses, and minimizing the number of unplanned stops and breakdowns; - decreasing the percentage of sanitary spoilage, recurrent waste, overweighs; - improving the indicators of global efficiency; - lowering fixed costs and optimization of work processes.	economic effect
Provision (excellent customer service)	- the quantity of produced products corresponds with the plan; - timely provision of fresh goods to the consumer according to the order; - compliance with transitions between equipment start-ups in line with the plan.	social and economic effect effects
Environmental safety (minimizing environmental impact)	- improvement of enterprise's environmental indicators (energy consumption, water consumption, waste production per ton of manufactures).	environmental effect

Morality (creating a comfortable working environmen)	- the level of proposals that were outlined by employees; - using best practices; - creation of a system for revealing the best qualities of a person and forming the personnel potential of the organization.	social and economic effect effects

As we can see, the Integrated Lean Six Sigma Production, as well as the CSER, affect all types of company's activity and involve 100 % of all employees in this process. Because employees are responsible for the equipment and work processes, they can improve the equipment's working conditions by inspecting and maintaining the equipment and being in charge of it. All employees control their workflows and take responsibility for the results of their activities. They know their workplaces losses and eliminate them every day and they are constantly learning and using their abilities and skills.

The implementation of CSER culture in companies is carried out in different ways. Usually, it depends on the level of the enterprise's development, which is characterized by production efficiency, the level of employees' development and the amount of achieved strategic goals. All actions are in the plans at different company's organizational structure levels, and they are regularly analysed. All information on CSER implementation should be accessible to every company's employee, as the fastness and efficiency of the implementation of the CSER mechanism depend on them. At the same time, the company's staffs are interested in CSER effectiveness as it will receive the following social benefits:

- a safe workplace and the way of doing work;
- safety of each employee;
- creating a comfortable and ergonomic workplace, which is a vital condition for achieving high working efficiency;

- satisfaction with the achievement of the set goals;
- employees who achieve goals always receive moral/financial reward for their work;
- personal development (continuous training of employees, creation of opportunities for acquiring new knowledge, skills and their effective use in everyday activities).

Today, if a company stays away from global trends regarding the transparency of business, it leads to negative consequences. According to the European Union Directive of 1 January 2018, it is mandatory for Ukrainian companies to disclose non-financial indicators in the reports. This requirement is obligatory for companies with a turnover of more than 40 million euro per year and with a staff of more than 500 people. Over 18,000 companies meet these criteria. Without a doubt, this will have a significant impact on Ukrainian companies operating in the European market or that registered in Europe and operating in Ukraine. Therefore, at the legislative level, prompt decisions such as the approval of the Concept of state policy implementation in the field of providing the social responsibility business development in Ukraine up to 2030 are made (Gritsenko, 2019).

The experience of CSER implementation shows significant changes not only in the social, environmental and economic indicators of the enterprise's activity but first of all in the paradigm of thinking, due to which there is a sense of involvement in the achieved results in ensuring the sustainable development of the state.

3.2 Social, environmental and economic effects after providing the CSER mechanism at the regional level

The implementation of the CSER mechanism brings several advantages not only for the company that establishes it but also for the region in which the enterprise is located. Due to the joint efforts of companies operating in one region, it is possible not merely to solve current environmental and social problems, but also to build sustainable cross-sectoral relationships for ensuring sustainable economic growth and providing a "win-win" effect for government, business and the community.

This idea is developed in numerous scientific researches of domestic and foreign scientists. For example, M. Arato et al. (2016) consider CSER as a driving force for regional development. The authors analysed the responsible activities of 100 companies from different industries and countries to determine their contribution to rural areas development. The results of an empirical study show that despite the fact that not all companies are directly related to rural areas, a significant number of them tend to support rural communities.

B. E. Soetjipto et al. (2017) investigated the relationship between CSER and regional development. The scholars carried out the analysis of the socially and environmentally responsible activities of enterprises in East Java. It was discovered that 287 companies surveyed in 2015 had invested approximately 2.5 trillion rupees in local community development. A number of programs and activities were run in the fields of education, health, environment, social sphere, etc.

D. Niño-Muñoz et al. (2019) proved that the implementation of corporate social responsibility strategy at Universidad Sergio Arboleda in Colombia has a positive impact on the development of human capital and the achievement of the Millennium Development Goals in the region. In addition, it is noted that the university CSR experience can easily be used in other organizations.

E. Apospori (2018) studies regional CSER policy and CSER measures at the enterprise level. It was proved that CSR measures have the possibility of the increase of competitiveness of small and medium-sized enterprises.

L. Levkivska and I. Levkovych I. (2017) investigate the features of the influence of socially and environmentally responsible behaviour of agricultural enterprises on local community development. The scientists produce proof that agricultural companies have to implement CSR principles under pressure from the globalization of agro-food supply chains, intensification of competition, further integration of Ukraine into Europe and the world market, and public pressure on farms.

A. E. Syarif and T. Hatori (2017) investigate the development of a mining region in Indonesia. In corporate social and environmental responsibility programs of mining companies the stopping of mining is a key problem and regional sustainability depends on the quality of this program.

C. E. Hou et al. (2017) examine the contribution of the creative industry and its companies' CSR programs to economic growth in the region. The authors confirm the relationship between corporate social responsibility and the financial efficiency of the creative industry.

The essence of corporate regional responsibility is represented in the study of M. Schiek (2016). The article describes opportunities for companies to create regional socially responsible corporations. At the same time, it is noted that the motives for such activities are currently unknown.

Meanwhile, the regional policy has also a very strong influence on the development of corporate social and environmental responsibility of enterprises. S. Xu et al. (2019) show that taking anti-corruption measures at the local level leads to the activation of companies disclosure on corporate social responsibility.

A. Zoysa and N. Takaoka (2019) in their research demonstrate the indicators of the level of corporate social and environmental responsibility in Japan regions.

The effects of the implementation of CSER measures at different levels, including the regional level, were investigated earlier (Smolennikov, 2017).

Such effects at the regional level can be social, economic and environmental.

The regional outcomes of the CSER mechanism implementation at a particular enterprise of the region are external regarding the enterprise. This is an impact on external stakeholders in relation to the enterprise, primarily on the community, which welfare may be improved by infrastructure development and getting better of environmental conditions in the region as well as influence on other enterprises in the region.

The adoption of the CSER measures has a positive cause on the socio- environmental security of the region. It is reflected in the reduction of ecological burden on the environment and in the prevention of ecological and economic losses from environmental pollution. Besides, the suggestion of CSER measures can increase the competitive advantage of the region by increasing the investment attractiveness of the region.

When we highlight the regional effects from the CSER measures implementation in an enterprise of a certain region, it should be pointed out that most of the regional effects from the CSER mechanism implementation are social, in particular:

- creating a positive image for the local community, increasing the reliability and reputation of the company and the region as a whole;

- promotion of sustainable development projects at the regional level, and as a result obtaining local benefits, especially social and environmental (Makarenko, 2018);
- reducing the morbidity of local community members as a result of improving the environmental quality of the region;
- increasing the life expectancy and period of active activity of the region's population;
- improving working conditions and recreation in the region, etc. (Semenova, 2006).

It is quite possible to conduct a quantitative assessment of the social effects of CSER mechanism implementation at the regional level due to the change in the goodwill value of the company. This is because creating a positive image for the local community, increasing the company's reliability and reputation, and growing the company's public perception of business can be measured by the enterprise goodwill. Concurrently, it is necessary to take into account the fact that the company's goodwill changes depending on the level of CSER during only a certain lag of time. In a study (Smolennikov, 2017), a detailed analysis was carried out and the above mentioned thesis was proved.

There are the following key environmental effects at the regional level from the CSER realization such as the reducing the amount of environmental pollution in the region and, eventually, improving environmental quality, maintaining the ecological balance of the region, saving or preventing the loss of natural resources. Quantitative assessment of environmental effects includes the calculation of the level of emissions and discharges of pollutants into the environment in dynamics, with the determination of the growth (decrease) rate of these indicators and estimation of the raise of economic evaluation of natural resources, which are saved as a result of providing the environmental measures.

It should be noted that environmental effects are closely related to social and economic effects at the regional level, and social, on its part, are related to economic.

The economic effect of applying of the CSER mechanism at the regional level appears in the growth of the gross regional product, which is the sum of the added values of all economic activities in the region. The increase of the gross regional product means a rise of local budget revenues that in the future will provide additional opportunities for the region's economic development and a surge of social projects in the region (Polozenko, 2010). At the same time, the enlargement of the gross regional product is due to the outgrowth of the level of social and ecological security of the region. On this side, it has the effect of increasing the competitiveness of the region. As a result, the investment attractiveness of the region expands and continues effect on the further growth of the gross regional product.

Another economic and social effect at the regional level is the involvement in the region of labour through migration. The increase of labour migration to the region can be expected in case of improving the socio-environmental security of the region and, consequently, getting betters the living standards. As a consequence of labour migration to the region, the gross regional product will also get higher.

An important regional economic effect of the CSER measures implementation by economic entities of the region is the prevention of external ecological and economic damage to the region which is the external negative externalities of economic activity as a result of environmental pollution. It includes losses from deterioration of the community's health (additional costs for medication and rehabilitation of community members), industry loss (temporary disability of workers), worsening of housing and communal services (extra costs for maintaining housing and communal infrastructure in terms of environmental pollution), and damage to forestry, etc. (Balatskyi, 2007). Methodological approaches to determining the economic assessment of environmental damage have been proposed by Balatskyi O. F., Tarkhov P. V., Telizhenko O. M. and others.

Avoidance of external environmental and economic losses may improve the level of socio-ecological security of the region (i.e. the level of region protection from destructive anthropogenic impact and overuse of natural resources, which is achieved by complying with the current environmental legislation and ensuring the establishment of environmental civil rights and freedoms) (Andrushkiv, 2011).

In order to quantitatively assess the economic effects of CSER realization at the regional level, we propose to determine the gross regional product (GRP) growth rate as a result of the increase of socio-ecological security level of the region, the growing of investments in the region, the extension of labour immigration, as well as prevention of external ecological and economic losses in the region (Fig. 3.3).

We propose to determine the effectiveness of the CSER mechanism implementation by companies at the regional level (E_R) using the formula:

$$E_R = \frac{\Delta \mathrm{GRP}_1 + \Delta \mathrm{GRP}_2 + \Delta \mathrm{GRP}_3 + \Delta \mathrm{GRP}_4}{\mathrm{C}_{\mathrm{SER}}},$$

where $\Delta \mathrm{GRP}_1$ – GRP growth rate due to the increase of socio-ecological security level of the region;

$\Delta \mathrm{GRP}_2$ − GRP growth rate due to the growth of investments in the region;

ΔGRP_3 − GRP growth rate due to the extension of labour immigration;

ΔGRP_4 − GRP growth rate due to the prevention of external ecological and economic losses in the region;

C_{SER} – company's costs for the programs and measures regarding the increase of the level of social and environmental responsibility within the framework of the CSER mechanism implementation (Smolennikov, 2017).

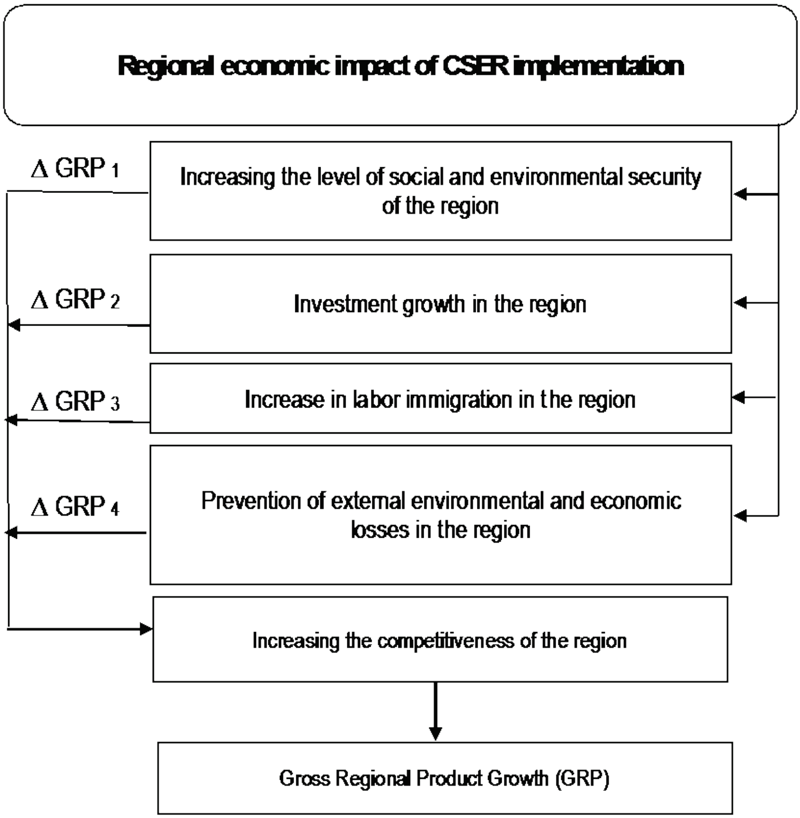

Figure 3.3. Components of the regional economic effect of the CSER implementation by companies (Smolennikov, 2017).

This approach allows determining the impact of companies' CSER measures on the development of the socio-economic system of the region.

When it comes to the development of a region, local authorities tend to maintain the competitiveness of their region, as well as to provide its further development. At the same time, the implementation of the CSER regional policy is one of the ways to increase the competitive capability of the region. In addition, the realization of the CSER regional policy will facilitate the advancement of CSER activities at the enterprises of the region, which may increase their competitiveness and the competitiveness of the region as a whole. The enforcement of the CSER regional policy will have an impact on the environment in which the companies operate and on the relationships between the enterprises. Eventually, all these affect the internal environment of the companies and directly on the CSER activities that will be implemented at the enterprises.

It is should be mentioned that the effectiveness of the various CSER policies implemented by local authorities are different in each region and depends on the regional context. The regional context is determined by the state administrative structure, the level of civil society institutions development, the political culture of the society, as well as the competitiveness of the region, the priority sectors of the region's economy and so on. Meanwhile, the main goal of local authorities in applying the CSER policy is to help businesses to improve their competitiveness, which should ultimately lead to the strengthening of competitiveness of the region.

Figure 3.4 shows the relationship between the regional CSER policy implemented by local authorities and regional public organizations with the CSER measures undertaken by enterprises. Besides, the figure also demonstrates the impact of the CSER policy on the competitiveness of the region. It is worth mentioning that there is an inverse relationship between the CSER measures provided by enterprises of the region in the face of their impact on the competitiveness of economic entities, the CSER regional policy, inter-organizational relationships between companies (the inverse effect is indicated by the dashed line in figure 3.4) (Apospori, 2018).

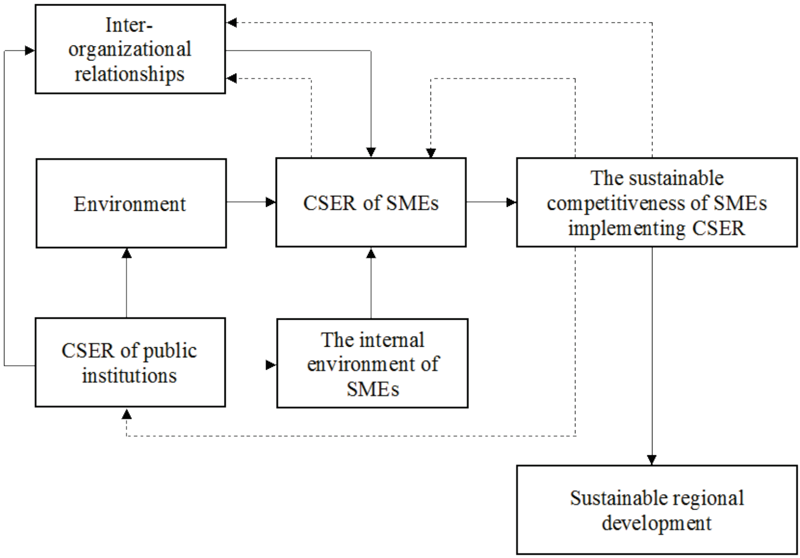

Figure 3.4. Implementation of CSER by small and medium-sized enterprises at the regional level (Apospori, 2018)

Taking into account that local authorities can use different measures for CSER policy implementation, it is important to choose such instruments that will support businesses in the realization of CSER measures that could make the greatest contribution to improving their competitiveness in the market. In other words, in order to achieve the goal of enhancing the competitiveness of the region, local authorities must formulate their CSER policies in accordance with the CSER measures enforced by the enterprises of the region.

These aspects are described in detail by Steurer R. et al. (2008), who proposed a two-dimensional matrix that includes the CSER policy and the measures for implementing the CSER policy. Mayer D. et al. (2012) suggests a modified matrix with the addition of a third dimension that contains the types of CSER measures that an enterprise plans to introduce.

CSER regional policy instruments should reduce the barriers with which companies face during the undertaking of CSER activities and should act as activators of CSER work at enterprises in a certain region. There are the following barriers preventing the implementation of CSER measures by a business: limited technical know-how for the development and adoption of CSER measures, limited financial resources to support CSER activities, limited management resources, high cost and lack of resources on the enterprise for taking of CSER measures, low awareness of CSER, fear of bureaucratization, etc. (Apospori et al., 2012).

In order to reduce the barriers with which companies face during the undertaking of CSER activities and for the purpose of carrying out CSER policy at the enterprises of the region, local authorities can apply the following instruments of CSER policy implementation (Apospori et al., 2012):

- economic and financial: taxes, tax credits, subsidies, bonuses;
- legal: norms, directives, etc.;
- information: branding, training, conferences;
- partnership: networks, stakeholder dialogue, etc.;
- hybrid: combinations of the above-mentioned instruments (e.g. subsidized training).

Thus, the implementation of the CSER mechanism at enterprises has not only local but also a number of regional effects due to the impact on the competitiveness of the region by contributing to the ecological and economic security of the region, increasing of investment in the region, rising of labour immigration into the region, reducing the ecological burden on the environment and the prevention of environmental and economic damage from environmental pollution, which consequently will increase the gross regional product.

3.3 Social, environmental and economic effects after providing the CSER mechanism at the national level

In 2015, all United Nations countries members formally adopted the resolution "Transforming our World: the 2030 Agenda for Sustainable Development" (United Nations, 2015) and agreed to add Sustainable Development Goals into public policy related to key areas of economic activity and use Sustainable Development Goals in central regulatory documents.

Ukraine has also ratified this document, and on September 2017, the Government of Ukraine presented a National Report on "Sustainable Development Goals: Ukraine" (Ministry of Economic Development and Trade of Ukraine, 2017), which outlines main indicators for achieving the Sustainable Development Goals at the national level.

The basic principle according to which the Sustainable Development Goals can be achieved is the cooperation of all stakeholder groups for the sole purpose of business, community and government.

Many scholars have investigated the relationship between corporate social and environmental responsibility and competitiveness at the national level. For example, the study of S. Zadek (2006) is based on United Nations information, a number of cases, and an econometric analysis of the interconnection between competitiveness at the country and corporate social responsibility levels. The author concluded that responsible business practices can force national and regional competitiveness, and responsible competitiveness can be a key element in enabling nations, regions and communities to meet the needs of their population, guarantee security, ensure economic growth.

A. MacGillivray et al. (2003) found a strong relationship between the National Corporate Responsibility Index and the Global Competitiveness Index.

However, it should be noted that it is sometimes worth considering the competitiveness at the regional level, especially when the competitiveness of regions varies greatly within one country. This conclusion was made by C. Ketels (2016).

R. Nyuur et al. (2019) also emphasize that corporate social and environmental responsibility is a competitive advantage. They came to this outcome by exploring 179 questionnaires of corporate executives in five sectors of the economy. The analysis was done for developing countries.

Several scientific works are devoted to the study of the interrelation of corporate social and environmental responsibility, company brand and image of the country. P. Magnusson et al. (2015) investigate the impact of CSER on a company's brand and country image. In addition, the authors are considering both a positive and a negative CSER impact on the brand depending on the sensibility of the country's image.

In contrary, A. Torres et al. (2012) confirm the positive impact of CSER on branding in the global market.

M. Khayrullina (2017) analysed the role of corporate social and environmental responsibility in achieving sustainable development. At the same time, the scientist identified the main global and national trends of non-financial reporting in the context of countries and regions and considered the role of the state in this process.

K. Lompo and J-F. Trani (2013) examines the impact of corporate social and environmental responsibility on human development. Scientists have proven the positive impact of CSER activities on increasing community well-being through improving living conditions.

A. Lim and K. Tsutsui (2012) analysed the institutional and political-economic effects of the CSER. The research of models of CSER implementation at the national level was based on two normative documents. They are the UN Global Compact and the Global Reporting Initiative. At the same time, founded on institutional and political-economic theories, the authors have developed a new analytical framework that focuses on four key environmental factors: global institutional pressure, local susceptibility, foreign economic penetration, and the national economic system. The analysis shows that the global institutional pressure due to non-governmental connections led to the CSER implementation at the national level.

A. Yang and W. Liu (2008) have devoted their research to the study of the role of the global intersectoral alliances' network in the CSER implementation in different countries. Researchers point out that the political factor and national level of education strongly influence the partnerships in social and environmental responsibility.

In the book of O. Meglio and K. Park (2019) the institutional context of the CSER at national and global levels was analysed, and strategies for applying the CSER measures and sustainable development initiatives were introduced.

In chapter 3.1 of this monograph, the effects of CSER enforcement at the enterprise level were described, and thus the role of business in achieving the Sustainable Development Goals was defined. The function of corporate social and environmental responsibility in fulfilling sustainable development has been worked out by Smolenikov D.O. (2013).

The regional impact as a result of the CSER implementation is outlined in chapter 3.2. Moreover, the authors described the CSER effect on the socio-environmental security and the competitiveness of the region through building sustainable cross-sectoral relationships based on the CSER principles.

The occurrence of CSER effects at the national level can be explained by the mechanism that is shown in Fig. 3.5.

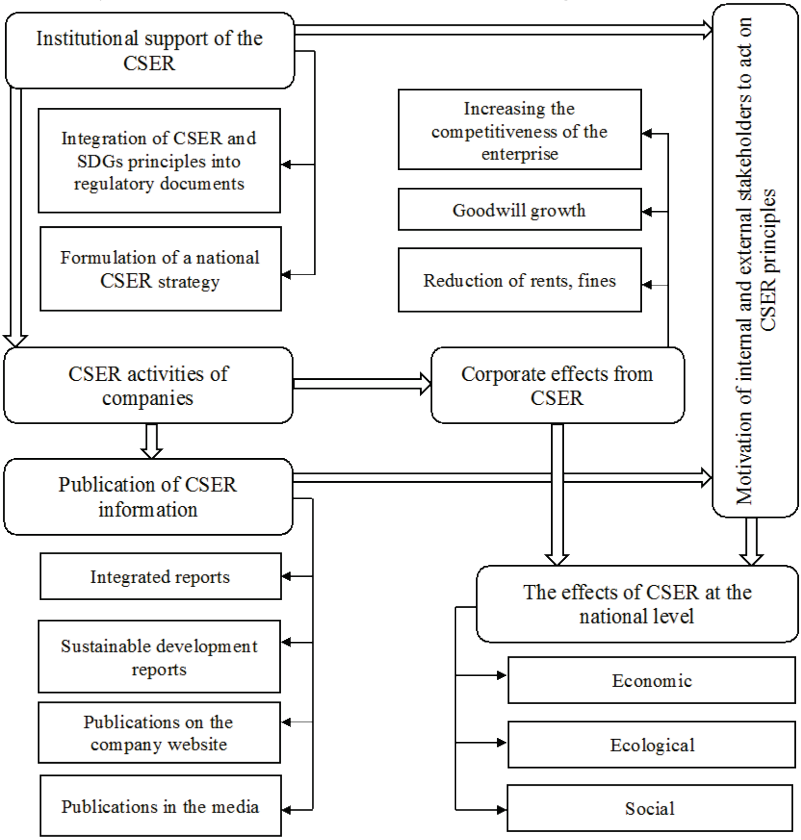

Figure 3.5. Mechanism of CSER implementation at the national level

The effect of the implementation of the CSER mechanism at the national level can be considered from two sides:

1) as a set of all regional effects owing to socially and environmentally responsible activities of enterprises in different regions;

2) as a result of the positive synergistic effect owing to the interaction of different stakeholder groups. For example, when a number of companies start their socially and environmentally responsible activity, other companies from different sectors of the economy join it and the behaviour of some citizens, who form communities, becomes more responsible. At the same time, the national institutional factor (institutional CSER support at the country level) is also important.

Currently, in Ukraine, there is substantial but insufficient institutional support that could ensure the social and environmental responsibility of companies and the sustainable development of businesses, regions, countries and the world. Let's note some weighty regulatory documents that have already developed:

- "The concept of sustainable development of settlements" (Resolution of the Verkhovna Rada of Ukraine from 24 December 1999 No. 1359-XIV);
- "Comprehensive Program for Implementation at the National Level of the Decisions Made at the World Summit on Sustainable Development during 2003-2015" (CMU Resolution No.634 of 26.04.2003; it has become invalid on the basis of CMU Resolution No.704 of 22.06.2011);
- "The concept of sustainable development of agroecosystems in Ukraine for the period up to 2025" (Order of the Ministry of Agrarian Policy of Ukraine No.280 from 20.08.2003);
- "The concept of the State Target Program for Sustainable Rural Development for the Period up to 2020" (CMU Decree No.121-r of 03.02.2010; it has become invalid on the basis of CMU Decree No.1761-r of 02.09.2010);

- "On the Sustainable Development Strategy "Ukraine-2020" (Presidential Decree No. 5/2015 of 12.01.2015);
- "On the Action Plan for Implementing the State Policy Strategy for Enhancing the Development of Civil Society in Ukraine in 2013 ", article 4 on the Development and Approval of the Strategy for Enhancing the Development of Corporate Social Responsibility in Ukraine (Presidential Decree No.343/2013 of 25.06.2013 it has become invalid on the basis of Presidential Decree No.246/2015 of April 28, 2015);
- Projects "Sustainable Development Strategy of Ukraine 2030", "National Action Plan for Implementation of Sustainable Development Strategy of Ukraine 2020" and others.

The Sustainable Development Goals, which established at the United Nations Sustainable Development Summit in 2015, were presented by the Government of Ukraine in a national report "On Sustainable Development Goals: Ukraine" in 2017. For today, 17 Sustainable Development Goals and 86 national targets have been incorporated into 145 Government regulatory acts.

The effects of the implementation of the CSER mechanism at the national level can be divided into three main components:

1) environmental;
2) economic;
3) social.

Let's consider the effects of the implementation of the CSER mechanism at the national level in terms of the Sustainable Development Goals (Fig. 3.6).

Regarding the environmental effects of the implementation of the CSER mechanism at the national level, it should be pointed out that it is the state's responsibility to ensure a clean and safe environment within the country. For this reason, the state controls the quality of drinking water and sanitation (Goal No.6) and responds to climate change (Goal No.13). Implementation of CSER measures at enterprises and appropriate state control over water quality, as well as the impact of production on soil quality (Goal No. 15), rivers and biota (Goal No. 14), allows ensuring national environmental safety.

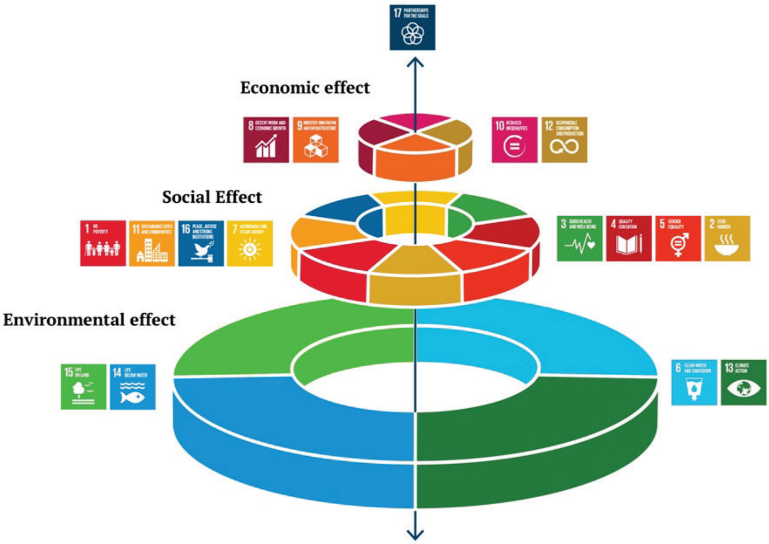

Figure 3.6. Sustainable Development Goals in the context of Social, Economic and Environmental effects (based on (Stockholm Resilience Centre, 2016))

The economic effects of the implementation of the CSER mechanism at the national level are those that reflect the mutual "economic" goals of sustainable development. In this case, it is primarily economic growth (Goal No. 8), the formation of the country image through the creation of socially and environmentally responsible products brand and the "ecological" regions brand. This will further force the competitiveness of national products in international markets and will be the guarantee for the companies' promotion in international markets. Often the brand image scales the whole country image. In addition, economic effects include cheapening borrowing resources and increasing investors' confidence in financial markets through conduction of responsible investing practices (Makarenko, 2018). As a result, it will also further influence the economic development of the country.

The state can support the implementation of clean technologies and innovations (Goal No. 9) that will create the country's image and economic development.

The government is responsible for managing the quality of the environment. The level of social and environmental security in the region is influenced by the authorities through setting requirements for the level of emissions and discharges of pollutants caused by the production. The government can motivate businesses to provide corporate social responsibility through a system of fines and restrictions, as well as other economic, legal and administrative instruments. However, apart from complying with mandatory norms, businesses and communities should make efforts to implement CSER measures to achieve the Sustainable Development Goals.

Encouraging the enforcement of CSER at the national level will activate the development of responsible production (Goal No. 12), which involves reducing the amount of waste, increasing its recovery and reusing on the basis of innovative technologies that decrease the resource intensity of the national economy (Ministry of Economic Development and Trade of Ukraine, 2017).

The social effects of CSER implementation at the national level include growing life expectancy and improving quality of life (Goal No. 3) as a result of maintaining environmental quality, as well as building a prime health system in the country.

Furthermore, environmental quality is influenced by the ability to use of clean energy by both businesses and households (Goal No. 7).

The state guarantees excellent education, proper working conditions and a decent minimum wage in most countries. Besides, the issue of equality of rights, reduction of wage inequality, access to various resources (e.g. education, medical care, work positions, etc.) are decided.

The introduction of CSER mechanism at the national level will enhance sustainable urban and community development, which includes integrated planning and regulation of community-based settlement development, reducing the negative impact on the environment of cities and communities with using innovative technologies, ensuring the improvement and implementation of local development strategies aimed at economic growth, creation of job positions, rise of tourism, recreation, local culture and local production (Goal No. 11).

Many CSER measures have a forceful social nature, like charitable projects on helping the poor citizens and people with disabilities, etc. (Goal No.1, 2). CSER provides equal access for both men and women to do business, take part in government decision-making (Goal No. 5). The state at the institutional level forms the ground for gender equality, which should be extended to all other levels, both regional and local.

All in all, the implementation of the CSER mechanism at the national level has a number of effects due to the impact on the economic development of the country, a positive social effect on improving the welfare and quality of life of citizens, which in addition to the previous results is also as a consequence of the environmental effect at the national level. Additionally, these effects at the national level are directly related to the achievement of the Sustainable Development Goals.

CHAPTER 4 THE CONCEPT OF RESPONSIBLE INVESTMENT DEVELOPMENT AS A MECHANISM FOR INTENSIFYING THE FINANCIAL SECTOR'S EFFORTS TO ACHIEVE THE SDG

4.1 Institutional support for sustainable development financing in the light of the multi-stakeholder approach

In 2015, 17 United Nations Sustainable Development Goals (SDGs) changed the Millennium Development Goals (MDGs) as global benchmarks for the balanced development of humanity. Adoption Agenda 2030 and Paris Agreement on climate change, demonstrate a significant gap in the expectations of a wide range of stakeholders and available financial resources to finance sustainable development. For example, climate change measures require $ 30 billion annually over the next 15 years (United Nations, 2015). Transition to a more cyclical economy in Europe will cost $ 100 billion. during the same period (Growth within, 2015). And according to the United Nations Conference on Trade and Development (UNCTAD), there is an annual investment gap of at least $ 2.5 to 4 trillion (UNCTAD, 2014).

Despite the consensus on the adoption of the Sustainable Development Goals, their financing remains an open question (Brunnhuber, 2015; 2017). At the same time, not only the directions and sources of formation and use of investment resources for financing the sustainable development of the countries, but also the institutional support in their management require new, rethought approaches.

General theoretical questions of creation of economic basis for sustainable development in general and financial support of its initiatives are the subject of research of domestic and foreign scientists: K. Bakstrend (2015), S. Brunhuber (2015; 2017),

D. Griegs (2013), M. Jeuken (2001), T. Kozhukhova (2017) and others. In particular, the works of S. Brunhuber (2015; 2017) identified the prospects of designing and applying new currency systems to finance sustainable development. Works by K. Bakstrend (2015), T. Kozhukhova (2017), M. Shan et al. (2017) relate to the general principles, policies and practices of financing sustainable development, and in the research by M. Dzhanik (2016), T. Busch et al. (2016) and O. Weber (2014) highlight the role of the financial sector and financial markets in shaping the financial support of such initiatives. At the same time, institutional support for sustainable development financing, given the large number of institutions and organizations in this field, has not been comprehensively studied.

Therefore, it is important to carry out the classification of institutions that finance sustainable development initiatives and study their experience at European and national level.

Developing the theoretical and methodological basis of institutional support for sustainable development financing, it is necessary to emphasize the importance of a multistakeholder approach in its development. Targets 17.16 and 17.17 UN Sustainable Development Goals 17. Strengthening the implementation and enhancement of work within the Global Partnership for Sustainable Development demonstrates its importance. Target 17.16 aims to strengthen the Global Partnership for Sustainable Development, complemented by multi-stakeholder partnerships that mobilize and share knowledge, experience, technology and financial resources to support the achievement of the Sustainable Development Goals in all countries, including developing countries. encourages and promotes effective public, public-private and civic partnerships, drawing on data, monitoring and accountability (Sustainable

Development Goals in Ukraine, 2018), based on partnership experience and resource strategies.

The multi-stakeholder approach describes a process that aims to bring together key stakeholders in new forms of communication, search and decision making and structure for specific issues; based on the recognition of the importance of capital reproduction and accountability in stakeholder communications; involve the presentation of key stakeholder groups and their position; based on democratic principles of transparency and participation and aimed at creating partnerships and strengthening the network between stakeholders (Hemmati, 2002). Thus, along with standard scientific research methods - such as generalization, synthesis and analysis, typing - the multistakeholder approach creates a cross-cutting framework for research on institutional support for sustainable development financing.

Sustainable development financing to ensure investment financing, taking into account environmental, social and governance criteria in the EU, is primarily aimed at reducing environmental pressures, tackling greenhouse gas emissions and combating pollution, minimizing costs and increasing the efficiency of natural resource use, which can mitigate risks affect the stability of the financial system.

At the global and European level, a significant number of institutions have been formed, which play a significant role in financing sustainable development.

T. Kozhukhova's opinion is correct in this context: “Global financial policy in the field of sustainable development implies the implementation of a purposeful set of actions and measures for the formation, distribution and redistribution of financial resources, carried out by international organizations, global funds and governments of countries within their powers and functions in the field of sustainable development goals realization" (Kozhukhova, 2017).

Among the following organizations are:

- The Principles for Responsible Investment, which develops progressive environmental, social and governance (ESG) standards for the investment process in the field of sustainable development;
- The UN Global Compact, which helps companies, investors and exchanges integrate ESG criteria into their business practices;
- G20, which promotes voluntary practices of increasing green funding;
- Equator Principles, which offer an approach for assessing the risks involved in the sustainable development of 80 financial institutions;
- The Sustainable Stock Exchanges initiative, which promotes disclosure of sustainable development among 48 exchanges in 52 countries;
- The Sustainability Accounting Standards Board proposes sustainable development accounting standards for 79 US industries;
- The International Standards Organization, which develops guidelines for measuring the organization's contribution to sustainable development (ISO 26000).

The above list is not full and, in our opinion, represents the main directions of work of institutes in the field of financing sustainable development.

Together, these institutions and the standards they support in the field of sustainable development create the institutional support for its funding, an environment for companies to communicate with stakeholders regarding incorporation into the strategy of the Sustainable Development Goals and to achieve them.

Consideration of each of the directions of work of institutes in the field of sustainable development financing allows to conclude about pluralism of approaches to forming of institutional support of financing of sustainable development. Not only international regulators, but also environmental, economic, financial (exchange) institutes, but also organizations that provide accounting for progress reporting on sustainability, organizations that create and support information products - market benchmarks in this area.

At the same time, the existence of such a number of institutions and standards in the field of sustainable development requires the creation of strong institutional support on a national basis, which would allow the implementation of these standards, taking into account the intrinsic features and the adopted strategy of sustainable development.

The European experience of institutional support for sustainable development financing is convincingly in favor of the implementation of the aforementioned standards in the EU and the formation of a strategy for a low-carbon, resource-saving and stable economy. The EU places the financial sector at the forefront in the following areas:

- refocus investments on more sustainable technologies and businesses
- ensure stable financial growth in the long term
- promote the creation of a low carbon, environmentally friendly and circular economy.

It is worth noting that the EU on the international arena now is the closest to creating a financial system that supports sustainable development. For this aim, in September 2016, the European Commission announced the creation of a High-level Expert Group on Sustainable Finance (HLEG) to advise on the development of a comprehensive EU Sustainable Financing Strategy.

It consists of 20 senior civil society, financial sector and academia experts, as well as a limited number of observers from European and international organizations. The task of HLEG is to provide guidance to the Commission on:

- integration of sustainable development within the framework of EU financial policy;
- protecting the financial system's stability from environmental risks;
- the mobilization of capital, in particular from private resources, to finance sustainable development investments;
- directing public and private capital flows to sustainable development investments;
- identifying the steps that financial institutions and supervisors should take to protect the stability of the financial system from environmental risks;
- dissemination of this policy at the pan-European level (European Commission, 2016).

Thus, the issues of institutional support for sustainable development financing in the EU are regulated at the highest level - at the level of the European Commission.

Analyzing the national experience of institutional support for sustainable development financing, it is worth noting that a comprehensive system of authorities of this type of targeting in Ukraine is still in its infancy. We see that the key reason for this situation is the lack of a national concept of sustainable development and policy coherence for sustainable development with European and world trends.

Having a significant number of regulations, concepts and strategies in the field of sustainable development, in particular:

Concept of sustainable development of settlements (1999); Sustainable Development Strategy "Ukraine 2020" (2015); The Poverty Reduction Strategy (2016). In Ukraine is not set up specialized institutes to coordinate sustainable development financing activities.

In the context of comparing national and European institutional experience, it should also be noted that financing of existing “green” projects and programs in Ukraine (including at the expense of international donors: the EU, the World Bank, the International Bank for Reconstruction and Development) is inefficient and non-transparent, primarily because of the lack of integrated institutional support for sustainable development financing.

Among the key areas for improving the effectiveness of sustainable development financing in Ukraine are the following:

a) adopting a national strategy for sustainable development of Ukraine, specified in terms of time, institutional and financial support;

b) enhancing transparency and preventing corruption and shadow schemes in the formulation and use of funds to finance energy efficient, innovative and other categories of green projects;

c) enhancing the involvement of civil society institutions in the financing of sustainable development initiatives;

d) applying a multi-stakeholder approach in the formation of financial and institutional support for sustainable development in Ukraine;

e) creation of an effective, efficient and economical system of planning, forecasting, monitoring and auditing of the effectiveness of financing sustainable development in Ukraine as a separate link in the institutional support.

Consequently, achieving the United Nations Sustainable Development Goals following Adoption Agenda 2030 and Paris

Agreement on climate change on multistakeholder approach requires the consolidation of efforts by national and supranational institutions to form a sufficient pool of development-oriented financial resources.

It is established that in the world and the EU there are a large number of such institutions, which collectively create institutional support for sustainable development financing, an environment for communication with stakeholders regarding the incorporation into the strategy of the Sustainable Development Goals and the progress in achieving them. This, along with the need to comprehensively consider the dimensions of sustainable development when organizing its funding, determines the importance of classifying such institutions.

Comparing European and national experience of financing sustainable development as an investment process, taking into account environmental, social and management criteria, in contrast to Ukraine, in the EU is primarily aimed at reducing environmental pressure, tackling greenhouse gas emissions and combating pollution. It is proved that the formation of a national strategy for sustainable development in Ukraine needs to strengthen the institutional capacity to finance activities and goals in this area.

One of the prospects for further research in this area is the development of key directions for the formation of financial support for sustainable development and its goals in Ukraine, taking into account the studied standards and European experience.

4.2 Comparative analysis of the conventional and responsible way of investing in companies of different sectors of the economy as a source of financing for sustainable development and its Goals

The expansion of responsible investment as a source of financing for the sustainable development economy in the world is characterized by a growing trend. According to the Global Sustainable Investment Alliance, from 2014 to 2016, the volume of operations in responsible investment markets was growing at a steady pace. Thus, the volume of responsible investment in the United States grew by 33.0% and reached 8.7 trillion of USD, while in the EU, its growth rate amounted to 11.0% and in absolute terms, this figure reached 12 billion of USD (Global Sustainable Investment Alliance Trends Report, 2016).

In Ukraine the responsible investment has not yet become much widespread, and the stock market itself is in crisis. However, the introduction of new approaches to the formation and selection of investment portfolios and justification of the appropriateness of responsible investment can be a trigger to stabilize the stock market and reorient its instruments to finance sustainable development.

Conventional investment portfolios consist mostly of the most liquid stocks and are optimized by investors according to risk/return criteria. Responsible portfolios are formed by investors, who take into consideration environmental, social and governance criteria (ESG). By reducing the number of shares of companies that can be selected into responsible portfolios, the common sense is that they are less profitable/more risky than conventional in terms of financial variables.

At the same time, responsible portfolios are formed from shares of companies that create long-term value for the society, participate in green projects, perform socially meaningful works for communities, which in aggregate can have a positive integral effect, embodied in the growth of their profitability and decrease riskiness, taking into account non-financial variables.

The study of responsible investment and its benefits to investors in terms of higher returns / lower risk to investors compared to conventional portfolios has a 35-year history. The basic definition of responsible investment is the definition of Salaber (2007), according to which such investments are made taking into consideration non-financial criteria that integrate ESG factors into the investment process. A more detailed distinction between responsible and traditional investment is provided by Capelle-Blanccard and Monjon (2012): responsible investors invest in companies that are considered as sustainable, with good working conditions, environmental and community relations, and avoiding actions "sin" companies operated in the field of arms trade, alcohol, weapons, nuclear energy, tobacco etc..

In scholarly sources concerning conventional and responsible investments and their portfolios, the discussion is mainly about exceeding of the conventional investment portfolios according to their parameters (return, risk) responsible investment portfolios. This discussion is carried out both at the level of individual studies of responsible and conventional portfolios according to different criteria, as well as meta-studies (Table 4.1).

We should note that among vast majority researchers, who attest to the fact that responsible portfolios have better performance than conventional, there are two group: 1) academician, who take into consideration the full set of ESGs; 2) academicians, who take into consideration separate E, S, G or their combinations.

Table 4.1. Individual studies of responsible and conventional portfolios

Portfolio comparison	Authors	
Responsible portfolios outperform conventional	ESG criteria set: Abramson and Chung (2000); Schröder (2004); Van de Velde et al. (2005); Kempf and Oscthoff (2007).	E and S: Brammer et al. (2006); Scholtens and Plantinga (2001); Klassen and McLaughlin (1996) S: Statman (2006); Shank et al. (2005), G: Opler and Sokobin (1995)
No significant difference between portfolios	Sauer (1997), Bauer et al. (2006), Bello (2005), Benson et al. (2006)	
Traditional portfolios outperform responsible ones	Renneborg et al. (2005), Hong and Kacperszyk (2009), Chong et al. 2006; Geczy et al. 2005	

Results of responsible and conventional portfolios meta-studies (table 2) indicate strong positive relationship between ESG and companies' financial performance.

Table 4.2 Meta-studies of responsible and conventional portfolios

Authors	Quantity of works	Number positive effects between ESG and financial performance
Margolis et al. (2007)	167	More than half of the studies
Orlitzky et al. (2003)	52	52 moderate positive relationships
Allouche and Laroche (2006)	93	52,68% of cases
Friede et al. (2015)	2200	90,00% of cases

Thus, literary sources point to the ambiguity of the influence of ESG-criteria on the parameters of investment portfolios, and therefore on the need for an empirical comparison of conventional and responsible portfolios.

In order to determine the composition of investment portfolios, it is necessary to solve two problems based on the model of H. Markowitz (Markowitz, 1952; 1959), namely:

1) calculate a portfolio with a minimum level of risk and a limited level of profitability, such a task has the form of such a system:

$$\begin{cases} \sqrt{\sum_{i=1}^{n} w_i^2 \cdot \sigma_i^2 + 2\sum_{i=1}^{n-1}\sum_{j=i+1}^{n} w_i \cdot w_j \cdot k_{ij} \cdot \sigma_i \cdot \sigma_j} \to \ min \\ \sum_{i=1}^{n} w_t \cdot r_i \ > \ r_p \\ \sum_{i=1}^{n} w_i \ = \ 1 \\ w_i \ \geq \ 0 \end{cases} \quad (4.1)$$

2) calculate a portfolio with a maximum level of profitability and a limited level of risk. This task looks like:

$$\begin{cases} \sum_{i=1}^{n} w_i \cdot \ r_i \to \ max \\ \sqrt{\sum_{i=1}^{n} w_i^2 \cdot \sigma_i^2 + 2\sum_{i=1}^{n-1}\sum_{j=i+1}^{n} w_i \cdot w_j \cdot k_{ij} \cdot \sigma_i \cdot \sigma_j} < \ \sigma_p \\ \sum_{i=1}^{n} w_i \ = \ 1 \\ w_i \ \geq \ 0 \end{cases} \quad (4.2)$$

The risk of an investment portfolio looks like:

$$\sigma_p = \sqrt{w_i \cdot w_j \cdot V_{ij}} = \sqrt{\sum_{i=1}^{n} w_i^2 \cdot \sigma_i^2 + 2\sum_{i=1}^{n-1}\sum_{j=i+1}^{n} w_i \cdot w_j \cdot k_{ij} \cdot \sigma_i \cdot \sigma_j}\ ;\ (4.3)$$

$where\ \sigma_i\ - standard\ deviation\ of\ the\ return\ on\ the\ i - th\ financial\ instrument$

$k_{ij}\ -\ correlation\ coefficient\ between\ i, j - th\ financial\ instrument$

$w_i\ -\ share\ of\ the\ i - th\ financial\ instrument\ in\ the\ portfolio$

$V_{ij}\ -\ covariation\ of\ the\ yield\ of\ the\ i - th\ and\ j - th\ financial\ instruments$

n- number of financial instruments of the financial portfolio

In order to compare conventional and responsible investment, it is necessary to calculate the return of shares of Ukrainian enterprises in which implemented strategies for corporate social responsibility and ordinary enterprises. To conduct research, we took the results of the stock quotes for the month at the Ukrainian Stock Exchange and the Warsaw Stock Exchange between February 2012 and January 2017, as it is a fairly significant period of time that will help us to make more accurate calculations.

Companies with implemented CSR strategies, which have shown their CSR activity in annual reports, include: PJSC «DTEK Zakhidenergo» (ZAEN), PJSC «ArcelorMittal Kryvyi Rih» (KSTL), PJSC Concern Galnaftogaz (GLNG), PJSC «Dniprospetsstal» (DNSS), DTEK Dniprovsky Electric Networks Ltd. (DNON), Kernel Holding (KER). Among the companies that have not implemented CSR strategies, we have taken the «blue chips» of the Ukrainian Exchange: PJSC «Raiffeisen Bank Aval» (BAVL), PJSC «Tsentrenergo» (CEEN), PJSC «Ukrnafta» (UNAF), PJSC «Ukrtelecom»

(UTLM), PJSC «Kryukiv Carriage Building Plant» (KVBZ), PJSC «Donbassenergo» (DOEN).

For the beginning, we calculated the monthly return for PJSC «DTEK Zakhidenergo» (ZAEN), PJSC «ArcelorMittal Kryvyi Rih» (KSTL), PJSC Concern Galnaftogaz (GLNG), PJSC «Dniprospetsstal» (DNSS), DTEK Dniprovsky Electric Networks Ltd. (DNON) with the growth rate (rt). The return for Kernel Holding (KER) was given.

Also, the return of shares for the month for enterprises of : PJSC «Raiffeisen Bank Aval» (BAVL), PJSC «Tsentrenergo» (CEEN), PJSC «Ukrnafta» (UNAF), PJSC «Ukrtelecom» (UTLM), PJSC «Kryukiv Carriage Building Plant» (KVBZ), PJSC «Donbassenergo» (DOEN) were given.

Then we calculated the growth rate (rt) for the quotes, which is an indicator of the return of shares.

The next step is to determine the mathematical expectation of return (ri) for each stock, for this we will find the arithmetic mean for the entire period. Equity risk (b) is calculated as the average deviation of the values for the entire period (Tables 4.3 and 4.4).

Table 4.3. Mathematical expectation of return and risk for shares of enterprises with implemented CSR strategies.

	PJSC «DTEK Zakhid-energo» (ZAEN)	PJSC «Arcelor Mittal Kryvyi Rih» (KSTL)	PJSC Concern Galnafto-gaz (GLNG)	PJSC «Dnipro-spetsstal»	DTEK Dnipro-vsky Electric Net-works Ltd. (DNON)	Kernel Holdi ng (KER)
ri (Expected Return)	-3,16%	-5,09%	-2,93%	-3,07%	6,89%	3,85 %
b (Risk (standard deviation))	12,24%	16,01%	21,52%	16,98%	40,44%	24,8 5%

Table 4.4. Mathematical expectation of return and risk for shares of ordinary companies.

	PJSC «Raiffeisen Bank Aval» (BAVL)	PJSC «Tsentrenergo» (CEEN)	PJSC «Ukrnafta» (UNAF)	PJSC «Ukrtelecom» (UTLM)	PJSC «Kryukiv Carriage Building Plant» (KVBZ)	PJSC «Donbassenergo» (DOEN)
ri (Expected Return)	-2,51%	-2,27%	-2,10%	-3,10%	-0,60%	-2,36%
b (Risk (standard deviation))	10,34%	11,05%	15,37%	17,22%	17,69%	12,09%

The next stage of calculation is the creation of tables of return covariations of shares among themselves (Table 4.5). These tables, in turn, create covariance matrices for the investment portfolio. You can notice that the diagonal values represent the variance of stock return.

And also we need to calculate this for conventional investment portfolio, that is similar with previous tables (Table 4.6).

According to the H. Markowitz theory (Markowitz, 1952) to solve the first problem (According system 1), it is necessary to determine the minimum acceptable margin level of the portfolio (rp). We take rp ≥ 3%, because such a minimum profitability level is acceptable for the Ukrainian stock market, and also introduce restrictions on the weighting of the share ratios: the share of shares should be equal to 1, and the shares themselves should have a positive sign.

To solve the second problem, we set the maximum permissible level of portfolio risk $\sigma p \leq 3\%$.

For the first task, after the calculations, we determined that for responsible portfolio of companies with CSR strategies with a minimum risk equal to 0.77%, the return is equal to 3%, and the portfolio consists of shares of Kernel Holding (KER) - 90.46% and PJSC «ArcelorMittal Kryvyi Rih» (KSTL)- 9.54%.

Table 4.5. Covariance matrix for responsible portfolio

	PJSC «DTEK Zakhidenergo» (ZAEN)	PJSC «Arcelor Mittal Kryvyi Rih» (KSTL)	PJSC Concern Galnaftogaz (GLNG))	PJSC «Dniprospetsstal»	DTEK Dniprovsky Electric Networks Ltd. (DNON)	Kernel Holding (KER)
PJSC «DTEK Zakhidenergo» (ZAEN)	0,014494	0,003184	0,003829	-0,004719	0,006336	0,005293
PJSC «ArcelorMittal Kryvyi Rih» (KSTL)	0,003184	0,024773	-0,004391	-0,008354	-0,017532	0,005518
PJSC Concern Galnaftogaz (GLNG))	0,003829	-0,004391	0,044760985	0,005165	0,025156	-0,01137
PJSC «Dniprospetsstal»	-0,004719	-0,008354	0,005165343	0,027872	0,001317	0,003533
DTEK Dniprovsky Electric Networks Ltd. (DNON)	0,006336	-0,017532	0,0251561	0,001317	0,15805	-0,01175
Kernel Holding (KER)	0,005293	0,005518	-0,011371211	0,003533	-0,01175	0,059685

And for ordinary companies, the conventional portfolio is not even formed, because return is negative.

For the second task (according to system 2), conventional portfolio was formed from ordinary companies with a maximum return of portfolio of -0.6%, and total risk is 100.08%. The portfolio consists of only shares of PJSC «Kryukiv Carriage Building Plant» (KVBZ)).

After the calculations, we determined that responsible portfolio of companies with CSR strategies with a maximum return of 6.89%, and total risk is 2.69%. The portfolio consists of shares of DTEK Dniprovsky Electric Networks Ltd. (DNON).

Table 4.6. Covariance matrix for conventional portfolio

	PJSC «Raiffeisen Bank Aval» (BAVL)	PJSC «Tsentrenergo» (CEEN)	PJSC «Ukrnafta» (UNAF)	PJSC «Ukrtelecom» (UTLM)	PJSC «Kryukiv Carriage Building Plant» (KVBZ)	PJSC «Donbassenergo» (DOEN)
PJSC «Raiffeisen Bank Aval» (BAVL)	0,010332	0,002147	0,007841	0,001093	0,008360	0,005550
PJSC «Tsentrenergo» (CEEN)	0,002147	0,011814	0,006234	0,004133	0,002701	0,006125
PJSC «Ukrnafta» (UNAF)	0,007841	0,006234	0,022830	0,003703	0,008058	0,005836
PJSC «Ukrtelecom» (UTLM)	0,001093	0,004133	0,003703	0,028676	0,004692	-0,001967
PJSC «Kryukiv Carriage Building Plant» (KVBZ)	0,008360	0,002701	0,008058	0,004692	0,030257	0,005969
PJSC «Donbassenergo» (DOEN)	0,005550	0,006125	0,005836	-0,001967	0,005969	0,01412

The basis of all calculations are a two problems based on the model of H. Markowitz. There are two tasks – first of all, to calculate a portfolio with a minimum level of risk and a limited level of profitability, and the second task - to calculate a portfolio with a maximum level of profitability and a limited level of risk.

Also was calculated the return of shares of Ukrainian enterprises in which implemented strategies for corporate social responsibility and ordinary enterprises for the comparison.

To conduct research, we took the results of the stock quotes for the month at the Ukrainian Stock Exchange and the Warsaw Stock Exchange between February 2012 and January 2017, as it is a fairly significant period of time that will help us to make more accurate calculations. We use classical H. Markowitz theory (Markowitz, 1952) to solve problem of portfolio optimization.

In case of a minimum risk/limited level of profitability results show that for responsible portfolio of companies implemented CSR strategies risk level equal to 0.77%, the return is equal to 3%. This portfolio outperform conventional portfolio. Last one is not even formed, because return is negative.

In case of maximum profitability/limited level of risk responsible portfolio of companies with CSR strategies has a maximum return of 6.89%, and total risk is 2.69 %. And also This portfolio outperform conventional portfolio, which was formed from ordinary companies with a maximum return of portfolio of -0.6%, and total risk is 100.08%.

If we take into consideration our research, it is clear that investing in Ukraine in a company with implemented corporate social responsibility strategies more profitable. After all, the risk of such claims is lower - in the first task the risk is 0.77%, and in the second it is 2.69%, and the return at given levels of risk is 3% and 6.89% severally.

And conventional portfolios are more risky, because in the second task the level of risk is equal to 100.08% with negative profitability. It should also be noted that the portfolio with the highest level of profitability was not even made due to negative return.

Undoubtedly, responsible activity of companies influence on profitability of the shares of companies in the Ukrainian stock market, as these companies are mainly the most progressive in their activities. They implement audit and corporate social responsibility strategies.

In the main, companies whose shares are part of a conventional portfolio are less profitable for investors due to the fact that their earnings are less stable, and these companies are more closed to information for investors, and these companies have a certain negative effect on the environment through their activities, because this company is based on electricity generation through coal combustion.

Companies with implemented CSR strategies are more open to different indicators, and they are implementing a variety of initiatives to preserve the ecology and energy-saving systems development.

The key hypothesis of the study was not confirmed because according to calculations, the traditional investment portfolios of Ukrainian companies do not outperform the responsible investment portfolios by their parameters (return, risk).

Further research in this direction is quite promising due to the existence of many theories of investing based on which it is possible to make calculations with broader base of companies' quotations. And the development of the stock market in Ukraine will allow for more substantive research. Other calculations can be made on the basis of different countries, because the results may differ between developed and frontier financial markets.

4.3 The assessment of socially responsible investment effectiveness in the context of achieving the SDGs

In the conditions of European integration processes, uncertainty and conflicts as well as in the context of financial and economic crises, the international community is aware that further economic development must be based on a fundamentally different basis. It should be linked to strengthening risk control, balancing financial and intangible interests, and should focus on the sustainable development of the economy and society. The SRI (socially responsible investment) is one of the tools that enables such development.

Socially responsible management of business entities is under the close attention of society, the state s well as international organizations. In developed countries, voluntary investment in social development is a common practice of corporate social responsibility, which is a beneficial activity for both society and the investor.

The economic nature of SRI distinguishes it from charity. Due to resource constraints, entrepreneurs should get the most out of social activities, including SRI, aimed at the public, customers or staff. The transformation of philanthropy in SRI is a sign of the progressive activities of the 21st century.

According to a survey conducted by the Center for CSR Development in 2014, most companies believe that the role of business grows in times of crisis, and depending on the strategy of doing business in times of conflict, different industries may be selected for social investment (e.g., improving employee safety, restoration of economic and social infrastructure).

Research interests of many foreign and domestic authors is devoted to SRI. The major publications in the field of SRI are the works of M. Blowfield (2014), J. Dreblow (2005), J. Derwall (2009), P. Kinder et al. (1993), R. Earle (2009) and others. The work of scientists R. Barber and D. Rifkin (Rifkin, 1978) is of great importance. They research the ethical aspects of investing, the impact of the economy, investment on society, the labor market, the environment and promote ideas of a caring attitude to nature. K. Bakhtarayeva considers SRI as a promising way of financial market development (Bakhtaraeva, 2006). Ukrainian authors Yu. Lazar, O. Zaval'na (Lazar, Zaval'na, 2012) and O. M. Kostyuk (Kostyuk, 2011) investigate current trends in the development of SRI, S. Moshensky (Moshensky, 2011) explores the nature and prospects of development of SRI. Noteworthy is the study of theoretical and methodological foundations and the evolution of the concept of SRI by I. Vasylchuk (Vasylchuk, 2015).

Significant contribution to the development of SRI is also made by research published by the European Social Investment Forum (Eurosif), The Forum for Sustainable and Responsible Investment (US SIF).

At the same time, the mechanism of functioning of the SRI market has not been analyzed, there is no single conceptual approach in the SRI field, as well as the features and examples of SRI implementation in the cross section of countries remain under-researched. Particular attention needs to be given to the prospects for the development of SRI in Ukraine. The above facts confirm the relevance of the study of the selected topic.

The purpose of the research is to identify the main trends of socially responsible investing both globally and in Ukraine, taking into account the hybrid warfare in Ukraine.

To achieve the goals and objectives of the study general and specific methods of cognition were used in the following stages:

1) the tendencies of socially responsible investment both globally and in Ukraine were analyzed by using the methods of analysis, synthesis, as well as the method of quantitative comparison with the use of secondary data obtained from the

reports of international organizations and research institutions, taking into account the conduct of hybrid war in East;

2) in order to study the existing methods of quantitative and qualitative assessment of social investments of the enterprise, methods of systematization, analysis and synthesis were applied based on the use of bibliographic search results and secondary data.

For decades, SRIs have attracted the attention of scientists, politicians, and the world's largest investment firms and pension funds (Goldman Sachs, Global Advisors, Global CalPERS, Norwegian Oil Fund, Swedish AP, ABP, PGGM), and international companies (Xerox, Foundation, Apple Foundation, Hewlett-Packard, Nestle Foundation), Ukrainian foundations (Victor Pinchuk Foundation, Anti-AIDS Foundation).

The SRI is a tool for achieving and supporting sustainable development, which is a priority of human development, which is listed in many documents of international organizations (UN Global Compact, International Labor Organization, UNICEF, UNIDO, Council of Europe, Organization for Economic Co-operation and Development, The European Organization of Quality, International standardization organization) and government documents of developed countries.

The trend of investing in the social environment and society has grown in recent years and has become a way for investors to thank the community, as well as a way to expand their corporate social responsibility. This is a way to increase public participation and awareness of social issues.

Blowfield M and Murray A. (Blowfield and Murray, 2014), adherents of the critical approach evaluate the origins, values and different perspectives on corporate responsibility. They claim that the role of business is changing as it seeks to address financial, social, political and environmental issues.

The social and environmental issues we face globally are significant. It is estimated that USD 1.4 trillion will be required each year to reach the 2030 Sustainable Development Goals (Gustafsson-Wright, 2018). According to UN estimates (World Bank, 2018), from USD 3.3 trillion to USD 4.5 trillion will be needed to finance sustainable development goals each year.

It is still not proven that such complex issues can be solved using traditional approaches. As one way of addressing these challenges, the international development community is developing new financing tools, some of which are aimed at mobilizing unused capital and private sector knowledge, refocusing global economic and social challenges on future prospects. Investing in preventative measures can avoid higher costs and make the public and civil society sectors more efficient. By paying for results rather than contributions that have unknown results, costs should be more efficient.

Domini A. states that SRI is now considered a reasonable and profitable way for investors to make money (Domini, 2001).

E. Umlas (2008) emphasizes that SRI has long been a strategy of equalizing values of investing by incorporating environmental, social and corporate governance factors into investment decision-making. Until recently, SRIs were considered as niche and well developed in only a few countries. SRI is of great interest to investors around the world today.

The US SRI market is the largest in the world. During the 21 years (1995–2016), according to the US SIF Foundation's 2016 Report on US Sustainable, Responsible and Impact Investing Trends (Report on Sustainable and Responsible Investing Trends in the United States, 2016), the amount of SRI increased by 1264% and at the end of 2015 amounted to USD 8.72 trillion. USA. Today, virtually every fifth dollar in the United States is invested due to environmental, social or ethical factors.

The European market for socially responsible investing continues to show steady development. According to a study conducted by Eurosif in 2017, the amount of socially responsible investment has increased by 549% compared to 2013 and now stands at EUR 6.76 trillion (Eurosif, 2018).

France and England remain the leading SRI leaders in Europe. Their share in the European market is 46%, which is almost half. With regard to the geographical location of socially responsible investments, the vast majority (85%) are made by European companies (only 10 % of which are in the relevant domestic markets). This is especially true for investors from the Netherlands (91%), Spain (83%) and France (74%). Investments in Asian countries, together with Japan, account for 3% of the total, and developing countries collectively receive 6% of investments mainly from Scandinavian countries and France (European SRI Study, 2013).

The study identified a number of factors that influence the emergence and development of SRIs in different countries:

1) ethical (USA, UK). Investment activities should be in accordance with the moral and religious traditions of society, do not support the production of harmful products and services.

2) human (Italy, Spain, France). Social investments contribute to the eradication of discriminatory employment policies, inappropriate working conditions, exploitation of workers, and racial discrimination; the smoothing military conflicts, the devastating social consequences of harmful human activities.

3) environmental (Germany, the Netherlands). Issues of environmental pollution, rational use of non-reproducible resources, flora and fauna are being addressed. Environmental threats and the status of risky ecological zones are monitored.

4) others (Sweden, Belgium, Norway, Austria). Institutional requirements for the placement of pension funds' assets, which

oblige in their investments to take into account issues of environmental protection, social development, investor requirements for corporate governance, transparency of financial and non-financial reporting, as well as accounting for social and environmental factors.

Taking into account the variety of social investment implementation trends in the scientific literature (Plekan, Panukhnik, 2016), it is accepted to distinguish internal and external social investment flows. Internal flows include: 1) staff development (improvement of safety at work, health care, professional development, opportunities for harmonious development and leisure, health improvement of employees); 2) resource saving. External flows include: 1) investments aimed at the development of local communities (development of education, science, technology and innovation, support for culture and sports, development of local self-government, charitable assistance to vulnerable sections of the population); 2) environmental protection.

The issue of evaluating the effectiveness of social investment and the implementation of social policy of the company as a whole is not well researched. It occurs at all stages: during planning specific programs and projects, their justification, summarizing the work done. The situation is is deeping by the multi-vector and diverse forms of social investment.

SRI allows investors to identify, validate and invest in companies that comply with SRI standards. The most popular in the world is the rating of socially responsible companies on the basis of stock and non-fund indices, the identifying of which indicates the level of social responsibility of companies within the adopted rating scale. The value of these indices is increasingly being taken into account by investors in the investment decision-making process and also serves as a benchmark for evaluating the performance of a particular market segment. The information concerning Corporate social responsibility is presented in quantitative and qualitative terms. The quantitative value of indices is a calculated indicator within the selected scale, which allows you to assign an enterprise to a certain group of subjects with a close index value. Quality characteristics describe a group of companies in the same range. But defining these indicators is a complex process, as well as their interpreting. In this regard, most investors who are interested in investing in socially responsible businesses make such investments through socially responsible funds (in particular, Domini, Calvert, Parnassusn), which use the above indices to observe and evaluate market dynamics of socially responsible investments. And the steady growth of such indices shows the increasing popularity of socially responsible investments.

The criterion for assessing the expediency of making social investments is the probable economic benefit (or efficiency) that a company expects to take from the planned activities. In some cases, traditional methods of evaluating investment projects are used to determine the economic effectiveness of such social measures. The key indicators in this case are Return on Investment (ROI), Return on Asset (ROA), Return on Sales (ROS), Return on Sales (EBITA) and some others. Research in this area is based on a comparison of the financial performance of companies actively pursuing social programs with the financial performance of companies that are less involved in social activities. The most compelling data can be obtained if the characteristics of the main detail of the sampling companies are as consistent as possible.

However, in most cases the result of the implementation of social programs is a social effect, which is almost impossible to describe by economic categories. In such cases, the term "business value added" is used in the world practice, i.e. the benefit brought to the core business of the company, its shareholders, investors, managers and people interested in making a profit through the implementation of charitable and social programs including. digital charity events (Kulyk and Zhigley, 2018). At the same time, such measures contribute to the growth of the company's social capital (Zhygley and Syvak, 2016).

SRI can be assessed using the following parameters:

1) expenditure (estimate the level of spending on certain social events). Examples are the average wage of staff, the size of the penalties of the Antimonopoly Committee, the amount of funds allocated for sponsoring cultural projects.

2) effecient (assess the effect of the social event). This group includes the number of new jobs created, the number of disabled workers, the number of cooperation programs conducted.

3) structural (evaluate the change in the structure of a particular resource). For example, the coefficient of staff stability, the age structure of staff, the coefficient of innovation activity, etc.).

4) effective (that is, evaluate the correlation between output and cost).

As N. L. Kusyk states in her article that some researchers use the methodology developed with the support of the United Nations Development Programme to determine the impact of socially responsible enterprise activity (Kusyk and Kovalevskaya, 2012). The methodology involves quantitative and qualitative assessment of social responsibility of the enterprise. Quantitative indicators include: 1) the value of social investments of companies per employee (in monetary units); 2) the share of social investments of companies in the total volume of sales (in percentage); 3) the share of social investments of companies in the total amount of profit before tax (in percentage). The qualitative indicators include the qualitative index of social investment for the i-th enterprise (the level of complexity of social activity of the enterprise), the qualitative index of social investment for the j-th feature (the degree of presence of the feature in the statistical sample of the enterprise) and the overall qualitative index of social investment (the level of complexity of social activity of the enterprises).

In the work of N.M. Shmygol a model for assessing the effectiveness of social investment and corporate social responsibility is grounded. The model was developed by scientists of the Institute of Urban Economy and is a calculation of a complex parameter (index) (Shmygol, 2010).

This approach is based on the fact that information about the cost of corporate social programs does not allow to properly compare companies between each other. In this regard, the calculated indices, which are measured in relative units (points or percentages). With the help of those indices organization can assess its place among other companies in the industry. In this case, a comprehensive index (CI) should take into account two components of the SR: 1) paid tax, investments, and 2) charity and social investment. This index summarizes the parameters related to the firm's tax, investment and social policies.

In addition, the author suggestes to calculate the indicator of prospective development (the ratio of the amount of social investments and investments in fixed capital to the amount of net profit) and the indicator of social expenditures (the ratio of social expenditures incurred by the enterprise during the reporting period, to the amount of net profit earned in the same period).

In international practice, it is considered acceptable when companies contribute about 1% of profits to social programs. Shareholders make sure that charity does not become excessive, as it can adversely affect the investment in fixed capital and the competitiveness of the business.

Shmygol N.M. suggestes to use modified economic indicators (Schmygol, 2010), such as:

1) return on investment (ROI) - indicates the relationship between social policy spending and the share of capital gains that resulted from this activity. On the one hand, this indicator is the most convincing and representative because it gives an opportunity to evaluate the effectiveness of social policy, its impact on the growth of economic indicators. On the other hand, it is the most difficult to measure and can therefore not be used in every area of the company. However, this indicator is well applied, for example, to such specific charitable activities as socially responsible marketing;

2) the indicator of the effectiveness of charity assistance and other social programs in comparison with the effectiveness of advertising, sales promotion, etc. (efficiency measurement). It gives an opportunity to compare costs and effects. It allows us to conclude, for example, about "more" or "less" effective social programs in comparison with advertising, sales promotion. But this figure cannot be quantified;

3) indicator of the process of social programs implementation (process measurement). It reveals the presence or absence of a connection between social policy and indicators of the main activity of the company, but shows neither comparative efficiency nor its quantitative expression. Most often, this dependency is described in case-studies that characterize the situation and explain what has been achieved as a result of the implementation of social programs and what could not have been achieved if they had not been implemented.

As a result of the research on determining the effectiveness of the SRI, it was found that efficiency is characterized by the achievement of the set goal in combination with ethical values. This implies: 1) financial efficiency (profitability, revenue growth, sales volume, risk insurance, reduction in operating expenses); 2) non-financial efficiency (reputation and image, loyalty of customers, staff, suppliers); 3) the effectiveness of the impact in the relevant territory.

The conducted analysis of the existing methods of assessing the effectiveness of the SRI of companies makes it possible to conclude that their use presupposes, first of all, the purpose of the assessment, which will determine the choice of one or another method (Fig. 4.1).

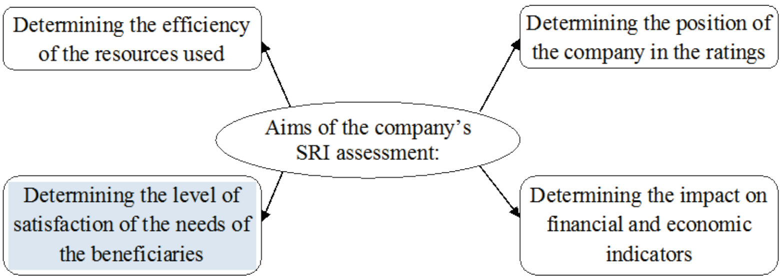

Figure 4. 1. The suggested objectives of the SRI assessment to select the appropriate assessment methodology

Source: Developed by the author

Possible evaluation goals are identified:

1) an assessment to determine the efficiency of the enterprise's resources used for the SRI. The authors of the article suggest to evaluate in terms of: *indicators of the use of labor resources* (coefficient of involvement of employees in SRI, the ratio of the share of corporate volunteering in the total amount of SRI, the ratio of working time spent by employees on corporate volunteer work and payroll for the purpose of providing charitable assistance and business expenses, the ratio

of the labor force involved in charity in operating costs of the enterprise); *indicators of the use of financial resources* (ratio of the share of cash in the total amount of the SRI, the ratio of the cash attracted from the issue of charitable bonds in the total amount of money placed on deposit for the further direction of providing charitable assistance, the ratio of the share of the funds to the charity bonds in the total amount of funds allocated for providing charitable assistance); indicators of use of material resources (the ratio of the share of materials in the total amount of SRI).

The information basis for calculating the suggested indicators is the annual financial statements, environmental reports, social reports, sustainable development reports, integrated reports etc.

2) evaluation to determine the competitive position of the company in the ratings. For this purpose, a number of international and foreign organizations have developed ratings based on stock and non-fund indices. The major global stock indices include the Dow Jones Sustainability Indexes, a group of indices created by KLD Research & Analytics (Domini Social Index, Large Cap Social Index, Broad Market Social Index, KLD-Nasdaq Social Index), FTSE4Good Index). These indices are intended to provide information for making a decision on socially responsible investing, which takes into account not only the financial but also the social and environmental aspects of the activity of a potential investment object. The most well-known non-fund indices include the Corporate Philanthropy Index, the Social Index by the Danish Ministry of Social Affairs, the Bloomberg ESG 3000 Global Index and the Environmental Sustainability Index, which are designed to benchmark socially responsible companies.

However, these indices have a number of disadvantages that make it impossible to apply them, in particular: 1) when assessing the level of responsibility, not all relationships and forms of interaction of companies with different groups of stakeholders are taken into account; 2) these techniques are not universal and therefore the performance of all enterprises cannot be evaluated; 3) the index calculation procedure is rather cumbersome and can therefore only be applied by individual rating companies or socially responsible funds.

3) evaluation in order to determine the impact of SRI on the financial and economic performance of the enterprise. This estimation is possible using traditional approaches: Return on Investment (ROI), Return on Assets (ROA), Return on Sales (ROS), EBITA, etc. Specific assets income should be considered separately (Zhyglei, Yukhymenko-Nazaruk, 2017). The authors offered to make an estimate using income and cost indicators (return on investment of SRI, coefficient of tax burden, ratio of operating expenses of the enterprise to SRI, ratio of expenses made from reserve to SRI, ratio of operating expenses profit for the purpose of creating a reserve to net profit of the enterprise).

4) assessment to determine the level of satisfaction of the needs of different stakeholders.

In the course of identifying the main trends of socially responsible investing both globally and in Ukraine, taking into account the conduct of the hybrid war, it is established that in an environment where the problem of resource exhaustion and the survival of humanity as a whole is changing, approaches to investing are changing as well. In addition to criteria such as profitability, liquidity and riskiness, another is added, i.e. sustainable development, the most relevant trends of which are determined by the world community (193 UN Member States unanimously adopted "The 2030 Agenda for Sustainable Development" in New York on 25th of September in 2015)., which contains 17 goals of the Sustainable Development, Poverty Eradication and Reducing Inequalities. Each of the goals involves a number of tasks, which in turn will be controlled by a set of global indicators. In addition, national statistics committees of Member States have set indicators for each target. Governments have also developed their own national indicators to help monitor progress towards goals and objectives. Currently, there are around 300 indicators for all goals. The Global Indicators System was developed by the Agency and the SDGs Expert Group, agreed by the UN Statistics Commission in March 2016 and adopted by the Economic and Social Council and the General Assembly (Sustainable Development Goals in Ukraine, 2018). The follow-up process will be reported in the Annual Progress Report on the SDGs, which is prepared by the Secretary-General.

For Ukraine, in the territory of which there is a hybrid war, the 16th goal of "Peace and Justice" is especially relevant. In the face of conflict or in the absence of rule of law, countries must take measures to protect those most at risk, as high levels of armed violence and instability have a devastating impact on the country's development.

The study of existing indicators revealed the urgent need to develop indicators of task performance at the company level and to conduct new surveys. Since the analyzed indicators are possible for use at the state level. Namely, in the analytical report (Vlasenko, 2017) the following indicators are suggested: 1) the share of the population satisfied with the experience of using infrastructure facilities and the level of social services in key areas in Donetsk and Luhansk regions (calculated in percentages); 2) share of the population satisfied with the level of administrative management services in Donetsk and Luhansk regions (calculated in percentages) and one more indicator from the national report (Gorshkova, 2017); 3) area of the unmined territory in Donetsk and Luhansk regions (calculated in ha) . Indicators for the state level are presented. Therefore, it is necessary to adapt them to the level of companies in order to be able to statistically summarize information, identify trends and determine plans. The authors suggest performance indicators for the 16th goal at the company level (Table 4.7).

Table 4.7. Performance Indicators for Goal 16 of the Sustainable Development Agenda

Goal setting globally	Goal setting at the national level	Company-level task performance indicators
Promoting a peaceful and open society for sustainable development, ensuring access to justice for all and creating effective, accountable and participatory institutions at all levels	restore conflict-affected territory (Donbass)	1) restoration of the infrastructure objects of the liberated settlements (quantity, cost); 2) providing charitable assistance to civilians;
	strengthen social resilience, promote peace and public security (conflict and post-conflict settlement)	1) retraining of the population for the employment purpose; 2) transfer of workers from the territory of Donbass

Active fighting caused large-scale internal displacement of the population. As of June 27, 2017, according to data from the structural units of social protection of the population of regional and Kyiv city state administrations, there were 1 584 859 internally displaced persons (IDPs) (1 274 119 families) from Donbass and Crimea (most of whom are women with children and the elderly). More than half of IDPs remained in Donetsk and Luhansk oblasts, a significant number of IDPs were adopted by Kharkiv, Zaporizhzhia, Dnipropetrovsk oblasts and Kyiv (Vlasenko, 2017). The forced displacement resulted in the load on social infrastructure, the decline in the level and quality of service delivery, social instability. Without proper regulation, internal displacement becomes a growing burden for host communities to provide basic services.

Metadata has not yet been identified for the submitted indicators, i.e. monitoring of the fulfillment of this goal is impossible, so it needs futher research. Due to the lack of harmonization of statistical definitions, it is very difficult to make accurate international comparisons based on national statistics. However, international developments are underway to increase the availability of internationally comparable crime and governance statistics. The lack of data for the assessment of SRI or their ambiguous interpretation in enterprise reports does not allow to make an objective assessment (Lehenchuk, 2018), which is one of the major issues that need to be addressed today.

Having analyzed the existing methods of quantitative and qualitative assessment of the social investments of companies, it is suggested to evaluate the effectiveness of SRI in accordance with the set goal. Specifying the purpose of assessing the effectiveness of the SRI will allow to choose the most favorable method, to form a system of indicators, to determine the requirements for the necessary input information, to correctly draw conclusions for making sound management decisions. The purpose of the evaluation should be to improve the methodological approach of evaluating the effectiveness of socially responsible investing by companies, which is a further area of research for the authors.

Analyzing the major trends of SRI both globally and in Ukraine, considering the hybrid war in the East, it was found that in addition to criteria such as profitability, liquidity and risk, another one is sustainable development. The authors suggest performance indicators for the 16th goal at the company level. The achievement of the goal should be based on the principles of sustainable development, inclusion in the general context of reforming Ukrainian society, harmonious reintegration of the affected territories and their population into the all-Ukrainian socio-economic, socio-political and legal space.

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