

RESEARCH

Identifying the Use of Environmental Social Governance (ESG) Strategies in Companies Associated with CSR Europe on Business Results, Macro-Economic Indicators of the Country and Sustainability of the EU

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ABSTRACT

PURPOSE: The aim of this research is to demonstrate and explain how the companies analysed implemented an effective Environmental Social Governance (ESG) strategy with positive results for their own business, the country's macro-economic results and the sustainable prosperity of the European Union (EU).

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DESIGN/METHODOLOGY/APPROACH: A combination of methods and procedures within a logical system framework at three dimensions that focused on responsible behaviour according to the ESG were used: micro-level → mezzo-level → macro-level. For the objective evaluation of the indicators and their implications to achieve the set goal, a correlation dependence of selected variables and indicators was used.

FINDINGS: Applications of ESG strategies in companies associated with CSR Europe (Corporate Sustainability and Responsibility) have relevant impact on business results, a country's macro-economic indicators, and EU sustainability.

ORIGINALITY: The research results related to the application of ESG strategies with real usage for companies, and macro-economic improvements are unique.

IMPLICATIONS: The model solution is synthesised to be adaptable to any company worldwide in a country's ESG framework, with a description of potential limits and barriers.

KEYWORDS: *ESG conduct; ESRS Standards; CSR Europe; Sustainability; Strategy.*

INTRODUCTION

The current situation leads us to focus more on the regulatory issues of sustainable behaviour. The quality of regulatory measures in the field of ESG strategies, their consistency and their economic impact on the prosperity of the company and the country are important.

The aim of the research is to demonstrate and explain how the companies analysed implemented an effective ESG strategy, resulting in positive results for their own business, the country's macro-economic results and the sustainable prosperity of the EU. The latest and methodologically robust data, collected and statistically processed at the level of enterprises in the EU, were used. Mainly regulatory frameworks and their relevant contribution to the promotion of sustainable behaviour with a positive impact on the ESG sustainability of the European region and the global community were analysed. The results of the research created principles applicable in practice; these influence an increase in the quality and sustainability of society's development.

THEORETICAL ASPECTS OF CORPORATIONS' ESG CONDUCT

Sustainability management requires a multi-faceted approach that includes environmental awareness, green human resource management practices, sustainable operational practices and knowledge management. These conditions, if implemented effectively, can lead to improved environmental performance and overall business success for companies in a variety of industries. In many sustainability management research papers, authors report the impact of key conditions. Managing corporate sustainability is influenced by

management attitudes, shareholder commitment, organisational culture and regulatory requirements. The integration of sustainability indicators into performance management systems is influenced by industry type, company size, and managers' perceptions (Zharfpeykan and Akroyd, 2022).

ESG principles are becoming increasingly important in corporate governance, reflecting a shift towards more sustainable and responsible business practices; integrating ESG factors into corporate strategies has been shown to increase organisational effectiveness and business. Interestingly, the convergence of corporate social responsibility, Good Corporate Governance (GCG) and Environmental Social Governance (ESG) has led to a more comprehensive understanding of corporate responsibility. Using these various ESG/corporate social responsibility/sustainability concepts, we are able to identify the most credible journal databases (Nafisa *et al.*, 2023; Cumming *et al.*, 2024; Menga and Vanolo, 2024; Jiang *et al.*, 2024; Parfitt, 2024).

Challenges remain in implementing ESG principles, including inconsistent reporting standards, data quality issues, and conflicts between short-term financial outcomes and long-term ESG goals (Shapsugova, 2023). Many studies have shown that a fundamental conflict exists between the pursuit of short-term profitability and long-term sustainability, posing significant challenges for ESG integration. A prevalent corporate mindset prioritising immediate returns often opposes investments in initiatives aimed at enhancing environmental or social performance, leading to a reluctance to adopt ESG principles (Korzeb *et al.*, 2025; Triwacananingrum *et al.*, 2024).

However, the adoption of ESG principles in corporate governance is key to long-term sustainability and value creation. Studies have shown that broad characteristics, such as independence, gender diversity and the presence of sustainability committees, positively influence ESG performance and market value (Makeeva *et al.*, 2022). While some research suggests a negative impact of environmental disclosure on the financial performance of companies in emerging markets (Saygili *et al.*, 2022), the overall trend suggests that integrating ESG principles into corporate strategies is essential for managing global challenges and increasing social impact (Makeeva *et al.*, 2022, Shapsugova, 2023).

The EU has made significant progress in developing a comprehensive ESG regulatory system with a focus on corporate social responsibility and sustainability reporting. The EU Non-Financial Reporting Directive (2014/95/EU) was particularly effective in improving the quality of corporate social responsibility disclosure among European banks in 2017-2019 (Loew *et al.*, 2021). This directive, together with other regulations such as the Sustainable Economic Activity Taxonomy Regulation

(2020/852/EU), has contributed to positive comparative developments in corporate social responsibility reporting over the years. The EU's commitment to a carbon-neutral economy by 2050 further underlines the integration of ESG in the financial services sector (Loew *et al.*, 2021). Subsequently, the Corporate Sustainability Reporting Directive (CSRD) (Directive 2022/2464 on Corporate Sustainability Reporting) contributes through the European Sustainability Reporting Standards (ESRS) to the gradual institutionalisation of ESG conduct in EU companies (EFRAG, 2024).

Existing Differences in the Implementation and Effectiveness of ESG Regulations

Some countries have introduced more advanced substantive and reflective regulations for ESG reporting (Camilleri, 2016). In addition, there is a significant difference in social performance indicators between new and older EU member states, with most business sectors focusing on activities that protect their workforce and local communities (Chatzianni and Dimitropoulos, 2022). The EU has made significant progress in developing a robust ESG regulatory system, but challenges lie ahead. These include the need for harmonised ESG reporting standards, improved data quality and availability, and better integration of ESG into investment decisions (Shapsugova *et al.*, 2023). ESG-supported welfare institutions are coming to the fore as the global economy moves towards sustainable development. These institutions focus on ESG factors to achieve long-term financial value while aligning with ethical values. The integration of ESG considerations into financial reporting has received considerable attention, driven by growing investor demand and corporate social responsibility (Budiasih, 2024).

There are also internal factors on which organisations should focus, such as diverse leadership, financial stability, effective control systems, disclosure transparency and a stable institutional environment to improve their ESG practices (Budiasih, 2024). Equally important is the governance structure. ESG governance can improve a company's environmental performance, financial performance, and market competitiveness by improving social interaction and meeting stakeholder needs (Chen, 2024). Research suggests that ESG performance can be measured through a variety of indicators across environmental, social and governance dimensions. Kocmanová and Šimberová (2014) identify specific ESG indicators for companies in the manufacturing industry, including environmental factors (investment, emissions, resource consumption, waste), social factors (society, human rights, labour practices, product responsibility) and governance factors (monitoring and reporting, efficiency,

structure, compliance) (Kocmanová and Šimberová, 2014). In terms of assessing the strength of ESG shift, some articles suggest looking at financial performance indicators, citing return on assets (ROA), return on equity (ROE), and stock prices as potential measures (Jamaluddin *et al.*, 2024). In addition, Gao *et al.* (2022) suggest that improved ESG performance may lead to lower stock price default risk; this could be another measurable indicator.

RESEARCH METHODOLOGY

Applying the research methodology for these ESG management conditions for all organisations, we identified documents on auditor, consultation and accounting company websites, and on associations focused on ESG management in EU countries. This analysis reveals missing or insufficient information that will be supplemented and clarified after resolving the questions arising from the following hypotheses:

Hypothesis 1: There is an internal dependency between three corporate ESG indicators (“E”, “S” and “G” parameters) in CSR Europe member companies headquartered in EU countries (mutual).

Hypothesis 2: There is an internal dependency between three corporate ESG indicators (“E”, “S” and “G” parameters) and “Annual turnover” in companies associated with CSR Europe headquartered in EU countries (each other).

Hypothesis 3: There is an internal dependency between three corporate ESG indicators and annual turnover in companies with headquarters in EU countries that are associated with CSR Europe. In addition, there are 12 selected related macro indicators from Eurostat in each company’s home resident country.

Hypothesis 4: There is an internal statistical dependency between 12 selected related macro indicators from Eurostat in each company’s home resident country.

Hypothesis 5: The country with the highest score (points for 12 indicators) also has the most advanced management of corporations, with successfully institutionalised ESG conduct.

We use a combination of methods and related procedures on the basis of the logical system framework for our aim to analyse three dimensions focused on responsible behaviour according to the ESG (Figure 1):

- micro-level → responsible conduct of companies associated with CSR Europe with headquarters in EU Countries;
- mezzo-level → related country economics of EU member countries; and
- macro-level → the association conduct of CSR Europe (as of the registration date 15 October 2024).

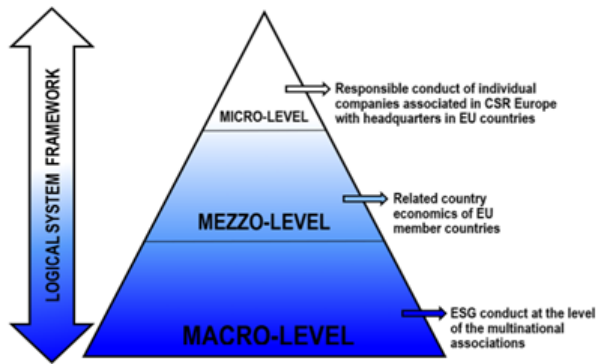


Figure 1 Logical System Framework of the Applied Methodology

Source: Constructed by authors

For our research methodology on the basis of a logical system framework, it is important to specify research objects and research procedures.

Research Objects

The highest quality levels of ESG behaviour are found in companies headquartered in EU countries that are members of CSR Europe (<https://www.csreurope.org/>); 74% are members of the UN Global Compact (<https://unglobalcompact.org/participation>). All CSR Europe member companies headquartered in EU countries are leaders in ESG behaviour because:

1. they follow a continuous Plan-Do-Check-Act (PDCA) cycle (Song and Fischer, 2020) using all relevant tools in an ESG strategy within the framework of the *CSR Europe Business Manifesto 2024-2029* (CSR Europe, 2024) and 10 principles of the UN Global Compact as an active member of the UN Global Compact (74%);
2. they have all the tools to implement a published and verifiable ESG strategy with functional ESG management accounting;
3. there are many organisations within the EU, but this association is focused on strengthening and improving the CSRD, with 12 ESRS to establish ESG strategies (<https://finance.ec.europa.eu>); various universities are working intensively with these agencies to provide training to students for these agencies and voluntarily establish ESRS in universities;
4. the institutionalisation of ESG strategy in each company associated with CSR Europe with headquarters in EU countries is effectively co-ordinated within the framework of the *CSR Europe Business Manifesto 2024-2029* (and older declarations). This association offers teaching and consulting ESG content (relevant EU Legislation).

For the selected companies associated with CSR Europe with headquarters in EU countries, we have established representative ESG criteria for a detailed assessment of their current ESG performance: this is an assessment of their current ESG behaviour, including corporate governance, environmental behaviour, social behaviour and annual turnover (Table 1).

Table 1 Representative ESG Criteria for a Detailed Assessment of the Current ESG Conduct

Criteria	Evaluation Interval with Characteristics
<i>Annual Turnover (in €m)</i> → indicator characterising what volume of value (financial) performance is generated by the executive institutionalised ESG system and its proportionality respecting the stimulation with legislation demands	From 176044 to 220000 → 8,01p. – 10.p. From 132083 to 176043 → 6,01p. – 8.p. From 88122 to 132082 → 4,01p. – 6.p. From 44161 to 88121 → 2,01p. – 4.p. From 200 to 44160 → 0p. – 2.p.
<i>Corporate Governance</i> → the quality of instruments and standards for institutionalisation of ESG management	Strategy of ESG/SDGs management, ethical committee/ESG commission, code of conduct, rules of procedure for ethical committee/commission, operative ESG plan/ SDGs plan → 9p. – 10.p. 1 of the tools is missing → 7p. – 8.p. 2 of the tools are missing → 5p. – 6.p. 3 of the tools are missing → 3p. – 4.p. 4 of the tools are missing → 1p. – 2.p.
<i>Environmental Behaviour</i> → the declared conduct accountability and transparency in all organisation environmental activities from rules/guide into realisation	All standards of environmental management have been performed: positive impact to climate change and pollution, water saving, energy saving, saving other resources, positive impact to biodiversity and ecosystems, conduct according to the circular economy → 9p. – 10.p. 1 part is missing → 7p. – 8.p. 2 parts are missing → 5p. – 6.p. 3 parts are missing → 3p. – 4.p. 4 parts are missing → 1p. – 2.p.
<i>Social Behaviour</i> → the declared conduct accountability and transparency in all organisation social activities from rules/guide into realisation	All standards of human capital management have been performed: conduct to employees, clients/ consumers, customers, co-operating human capital categories, other stakeholders → 9p. – 10.p. 1 part is missing → 7p. – 8.p. 2 parts are missing → 5p. – 6.p. 3 parts are missing → 3p. – 4.p. 4 parts are missing → 1p. – 2.p.

Source: Constructed by authors

To identify impacts of ESG conduct in member companies of CSR Europe on business results and sustainability, we specify our selection related macro indicators (Table 2).

Table 2 Selected Related Macro Indicators

Area	Selected Related Macro Indicator	Abbreviation according to Eurostat
Responsible Investment	Gross domestic expenditure on research and development	[GERD]
	Digital Intensity by NACE Rev.2 activity	[isoc_e_diin2\$defaultview]
	Exports of goods and services in % of GDP	[tet00003]
Pillar E	Gross value added in the environmental goods and services sector	[sdg_12_61]
	Share of renewable energy in gross final energy consumption by sector	[sdg_07_40]
	Water exploitation index, plus (WEI+)	[sdg_06_60]
Pillar S	Gender employment gap, by type of employment	[sdg_05_30]
	Adult participation in learning in the past four weeks by sex	[sdg_04_60]
	Persons at risk of poverty or social exclusion	[sdg_01_10]
Pillar G	Official development assistance as share of gross national income	[sdg_17_10]
	Gross domestic expenditure on R&D by sector	[sdg_09_10]
	Investment share of GDP by institutional sectors	[sdg_08_11]

Source: Constructed by authors

Research Procedures

For the objective evaluation of the indicators and their implications in achieving the set goal, we used the correlation dependence of selected variables and indicators. We calculated Pearson's correlations with a variance-stabilising adjustment (Fisher transformation); this was tested statistically at a two-sided significance level of 5%. We applied this method to both positive and negative values and rescaled the original indicators as reported by Eurostat on a scale of 0-10. We reverted the poverty risk and gender gap scores to match the remaining indicators for the higher score, this being a desired outcome (e.g., lower risk or gap). We calculated the summary indicators ESG total score and macro total score as the sum of rescaled individual respective micro-indicators (for companies) and macro-indicators (for countries). We determined the interval range of the resulting values, as shown in Table 3.

Table 3 The Interval Range of the Resulting Values

Interval for	Positive Values	Negative Values
Large	0.50 =< 1.00	-0.50 =< -1.00
Medium	0.30 =< 0.50	-0.30 =< -0.50
Small	0.10 =< 0.30	-0.10 =< -0.30

Source: Constructed by authors

RESULTS AND DISCUSSION

All logical steps of our co-author team are focused on achievement of the main aim – to analyse the level of ESG conduct of companies associated with CSR Europe with headquarters in EU countries, its determinants and impacts, and to give recommendations for improvements and its effective development.

Hypothesis 1

There is an internal dependency between three corporate ESG indicators (“E”, “S” and “G” parameters) in CSR Europe member companies headquartered in EU countries (mutual).

We evaluated and analysed the aggregated values of “E”, “S” and “G” indicators of 23 companies in CSR Europe (who have their headquarters in the EU) via the statistics methodology discussed previously (Table 4).

Table 4 Internal Dependency of “E”, “S” and “G” Indicators

Score	“G”	“E”	“S”
“G”	1.00	0.35	0.50
“E”	0.35	1.00	0.14
“S”	0.50	0.14	1.00

Legend:

Interval for	Positive Values	Negative Values
Large	0.50 =< 1.00	-0.50 =< -1.00
Medium	0.30 =< 0.50	-0.30 =< -0.50
Small	0.10 =< 0.30	-0.10 =< -0.30

Source: Constructed by authors

When we examine the internal dependence of the “E”, “S” and “G” indicators and their mutual influence, we see a very positive situation. Expenses for measures in the field of administration, economy, and management support the social pillar to

the greatest extent (0.5) and vice versa: spending 1 unit on administrative measures brings positive impacts into the social area by 0.50 unit; e.g., re-organisation processes with a more motivating remuneration system, supporting creativity and innovations, enhancement work-balancing. To a lesser extent, measures in the “G” area have an impact on environmental conduct (0.35). We identify a smaller dependence between processes in environmental conduct and their impact on the social pillar (0.14). These are positive findings from ESG conduct. It is possible to effectively use the synergistic effect of ESG management of strategic companies according to the ESRS standards by quality implemented ESG strategies.

Based on the summarisation and analysis of the obtained empirical data, we can confirm the validity of Hypothesis 1, which states the existence of interdependence between the three basic corporate ESG indicators (parameters “E” - environmental, “S” - social and “G” - governance). This interdependence has been statistically demonstrated in CSR Europe member companies based in EU countries. The results point to the synergistic nature of ESG parameters, where their interaction and joint application contribute to sustainable development and overall corporate performance, confirming the integrity of ESG as a multidimensional assessment framework.

Hypothesis 2

There is an internal dependency between three corporate ESG indicators (“E”, “S” and “G” parameters) and “Annual turnover” in companies associated with CSR Europe headquartered in EU countries (each other).

The first step of our analysis is focused on a functioning model of the standard values of ESG conduct (Table 5):

Table 5 Statistics Indicators

ESG Indicator/ Value	Corporate Governance	Environmental Behaviour	Social Behaviour	Annual Turnover	Σ Score
Modus value	9.50	8.50	9.50	0.30	27.80
Average value	8.75	8.58	8.94	1.46	27.73
TOP value	8.50	9.10	8.50	9.86	35.96

Source: Constructed by authors

Our analysis of the relationship between ESG indicators and annual turnover of CSR Europe companies based in EU countries, compared to the Modus standard, shows a significant positive correlation trend. Specifically, 39.13% of all companies analysed have implemented an effective ESG strategy that not only has a measurable

impact on environmental, social and governance (“E”, “S” and “G”) parameters, but also generates synergies in a responsible way; this is also reflected in profitability as measured by annual turnover (Figure 2). This result suggests that the application of an ESG strategy can not only be a tool to achieve sustainability, but also a factor that promotes the economic performance and growth of companies in the European context.

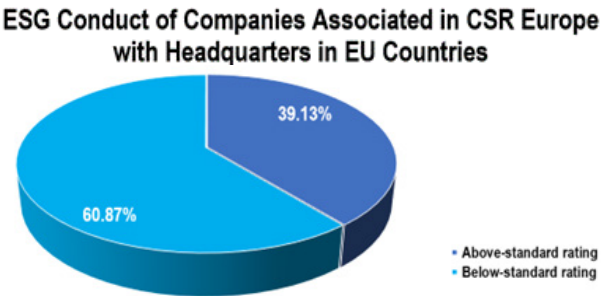


Figure 2 ESG Conduct of Companies Associated with CSR Europe with Headquarters in EU Countries

Source: Constructed by authors

We identified the leader’s corporations: Iberdrola 31.24 points, Enel 32.55 points and Total Energies 35.96 points (Table 6).

Table 6 The Leader’s Corporations According to the ESG Conduct

Corporation Members of CSR Europe	Country of the Headquarters	UNGC – Corporation Members	Corporate Governance	Environmental Behaviour	Social Behaviour	Annual Turnover	Σ Score
Iberdrola	Spain	Yes	10.0	9.5	9.5	2.24	31.24
Enel	Italy	Yes	9.5	9.1	9.6	4.35	32.55
Total Energies	France	Yes	8.5	9.1	8.5	9.86	35.96

Source: Constructed by authors

When examining the dependencies between the “E”, “S” and “G” parameters and annual turnover in detail, we see the largest statistical dependency (with a positive value) in the Environmental score (“E”) indicator of 0.44 (Table 7). This means that spending 1 unit on environmental measures brings a positive impact on annual turnover of 0.44 units, e.g., higher quality and more productive technology, the substitution of materials for the benefit of the environment, and an increase in the volume of transport

through more ecological channels determines increasing credibility, trustworthiness and directly productivity expressed in annual turnover. This confirms the fact discovered during a detailed study of the materials of individual corporations.

Table 7 Dependency among Three Corporate ESG Indicators and Annual Turnover

Score	Turnover
“G”	0.13
“E”	0.44
“S”	-0.11

Source: Constructed by authors

The second statistical dependency (with a lower rate of dependence) is seen in the Governance score (“G”) indicator at 0.13. This means that spending 1 unit on governance measures brings a positive impact on annual turnover of 0.13 units, e.g., substitution of the newest and more adequate enterprise information systems, green financing from leading banks, and improvements in insurance procedures in co-operation with leader insurance companies generates positive effects on annual turnover.

The third statistical dependency (with the lowest rate of dependence) can be seen in the Social score (“S”) indicator at -0.11. This means that saving 1 unit in a social area brings a positive impact on annual turnover of 0.11 units, e.g., savings due to improved ergonomic processes, substitution through outsourcing, increased share of work in the home office, etc., as we read in enterprise documents; these are the most typical reasons for higher positive changes and saved cost in social areas with positive impacts on their annual turnover and their profits.

ESG measures positively impact financing and investing in favour of higher profitability. After our argument summarisation, we can confirm Hypothesis 2, there is an internal dependency between three corporate ESG indicators (“E”, “S” and “G” parameters) and “Annual turnover” in companies associated with CSR Europe with headquarters in EU countries (each other).

Hypothesis 3

There is an internal dependency between three corporate ESG indicators and annual turnover in companies with headquarters in EU countries that are associated with CSR Europe. In addition, there are 12 selected related macro indicators from Eurostat in each company’s home resident country.

In this phase of the research, we focus on analysing the relationships and dependencies between the two main data vectors. These include the 3 core ESG dimensions (environmental, social and governance) and the annual turnover of the 23 CSR Europe companies based in EU countries, and the macro indicators from Eurostat:

- nine indicators focused on the Sustainable Development Goals (SDGs) (e.g., indicators on renewable energy, greenhouse gas emissions, access to quality education and health);
- three indicators were related to finance/investment (e.g., volume of investment in green technologies and sustainable business).

This set of macro indicators has been analysed in the context of each of the eight countries where the companies analysed are based: Belgium, France, Germany, Greece, Italy, Luxembourg, the Netherlands and Spain. The analysis aims to identify the relationships between companies' ESG indicators and annual turnover, in combination with macro indicators, to explore how internal and external factors influence company performance and contribute to the achievement of the SDGs in the regions of the EU. Table 8 gives details to explain the concrete dependencies, in numerical form and graphic visualisation.

Table 8 Correlation of ESG Dimensions and Annual Turnover with Selected Indicators of the UN's 17 SDGs

Macro Indicator/ Score	GERD	isoc_e_diiin2\$defaultview	sdg_17_10tet000003	sdg_09_10	sdg_08_11	sdg_12_61	sdg_07_40	sdg_06_60	sdg_05_30	sdg_04_60	sdg_01_10
"G"	-0.04	-0.25	-0.22	0.09	0.27	0.57	0.19	-0.10	-0.06	0.16	-0.22
"E"	-0.01	-0.02	0.03	-0.25	0.06	0.10	-0.13	0.03	-0.18	0.05	-0.06
"S"	-0.04	-0.38	-0.39	-0.06	0.15	0.42	0.29	0.10	-0.17	-0.11	-0.18
Annual Turnover	0.15	-0.22	-0.10	0.09	0.30	0.34	0.12	-0.31	0.29	0.09	0.12

Source: Constructed by authors

The most visible is the strongest dependence between the “G” parameters and the macro indicator “sdg_12_61” (Gross value added in the environmental goods and services sector). This means that spending 1 unit in the area of improvement management, economic and financial improvements (e.g., focusing on higher quality and more productive technology, substituting of materials for the benefit of the environment, and increasing the volume of transport through more ecological channels, etc.) generates environmental protection and supporting activities for more sustainable resource management, either domestically or abroad, expressed in economic value 0.57. This is the most significant value of statistical dependence.

The second largest dependence is between “S” parameters and the same macro indicator, “sdg_12_61”. This means that spending 1 unit in improving working conditions, enforcing daily human rights and a more objective remunerative system (according to the enterprise documentation) determines environmental protection and supportive activities for more sustainable resource management, either domestically or abroad, expressed in economic value 0.42.

The third statistical dependency according to the statistical significance of this dependence (with the value of the indicator -0.39) can be seen between “S” parameters and the macro indicator “tet00003” (Exports of goods and services in % of Gross Domestic Product (GDP)). This means that saving 1 unit in a social area (e.g., savings due to improved ergonomic processes, substitution through outsourcing, increased share of work in home offices, etc.) generates a positive effect on increasing exports of goods and services, expressed in economic value 0.39. The weight of truthfulness of these findings is also confirmed in Table 7, Dependency among three Corporate ESG Indicators and Annual Turnover in this research.

The results of our analysis suggest that interactions between companies and their macro-economic environment exhibit statistically significant links. Positive ESG behaviour has a relevant positive impact on country and EU macro indicators.

Based on the summary and analysis of our findings, we can confirm the validity of Hypothesis 3; this assumes the existence of internal dependencies between three corporate ESG indicators and annual turnover in companies with headquarters in EU countries that are associated with CSR Europe. In addition, there are 12 selected related macro indicators from Eurostat in each company’s home resident country.

Hypothesis 4

There is an internal statistical dependency between 12 selected related macro indicators from Eurostat in each company’s home resident country (Table 9).

Our analyses detail the previous research in Hypothesis 3, and they are based on examining the inter-relationships of the mentioned 12 selected related macro-indicators from Eurostat (see Table 9). This colour visualisation shows very frequent statistical dependencies between 12 selected related macro-indicators, as 21% of the statistical dependencies have a value higher than 0.5 (positive and negative) for direct or indirect statistical dependencies (Table 10).

Table 9 Internal Statistical Dependency among 12 Selected Related Macro Indicators

Macro Indicator	GERD	isoc_e_dlin2 \$defaultview	tet00003	sdg_17_10	sdg_09_10	sdg_08_11	sdg_12_61	sdg_07_40	sdg_06_60	sdg_05_30	sdg_04_60	sdg_01_10
GERD	1.00	0.16	-0.20	-0.30	0.34	0.66	0.02	-0.29	-0.17	0.34	0.32	0.27
isoc_e_dlin2\$defaultview	0.16	1.00	0.71	0.48	0.32	0.05	-0.59	-0.84	-0.48	0.52	0.50	0.69
tet00003	-0.20	0.71	1.00	0.67	-0.22	-0.27	-0.64	-0.75	-0.57	0.42	0.46	0.55
sdg_17_10	-0.30	0.48	0.67	1.00	0.15	0.18	0.05	-0.52	-0.87	0.73	0.47	0.70
sdg_09_10	0.34	0.32	-0.22	0.15	1.00	0.60	0.19	-0.24	-0.26	0.45	-0.10	0.49
sdg_08_11	0.66	0.05	-0.27	0.18	0.60	1.00	0.61	-0.23	-0.54	0.56	0.16	0.41
sdg_12_61	0.02	-0.59	-0.64	0.05	0.19	0.61	1.00	0.47	-0.13	0.07	-0.18	-0.16
sdg_07_40	-0.29	-0.84	-0.75	-0.52	-0.24	-0.23	0.47	1.00	0.63	-0.50	-0.57	-0.84
sdg_06_60	-0.17	-0.48	-0.57	-0.87	-0.26	-0.54	-0.13	0.63	1.00	-0.90	-0.55	-0.79
sdg_05_30	0.34	0.52	0.42	0.73	0.45	0.56	0.07	-0.50	-0.90	1.00	0.56	0.75
sdg_04_60	0.32	0.50	0.46	0.47	-0.10	0.16	-0.18	-0.57	-0.55	0.56	1.00	0.65
sdg_01_10	0.27	0.69	0.55	0.70	0.49	0.41	-0.16	-0.84	-0.79	0.75	0.65	1.00

Source: Constructed by authors

Table 10 Frequency of Statistical Dependencies among 12 Selected Related Macro Indicators

Macro Indicator / Value	GERD	isoc_e_dlin2 \$defaultview	tet000003	sdg_17_10	sdg_09_10	sdg_08_11	sdg_12_61	sdg_07_40	sdg_06_60	sdg_05_30	sdg_04_60	sdg_01_10	Σ
Large 0.50 =< 1.00	1	3	3	3	1	4	1	1	1	5	2	5	30
Medium 0.30 =< 0.50	3	3	2	2	4	1	1	1	0	3	4	2	26
Small 0.10 =< 0.30	2	1	0	2	2	2	1	0	0	0	1	1	12
Large -0.50 =< -1.00	0	2	3	2	0	1	2	5	6	1	2	2	26
Medium -0.30 =< -0.50	0	1	0	0	0	0	0	1	1	1	0	0	4
Small -0.10 =< -0.30	4	0	3	1	4	2	3	3	3	0	2	1	26
	10	10	11	10	11	10	8	11	11	10	11	11	124

Source: Constructed by authors

The most direct statistical dependencies with a large positive value $0.50 = <1.00$ are shown by indicators:

Gender employment gap, by type of employment [sdg_05_30] with:

- persons at risk of poverty or social exclusion [sdg_01_10] 0.75;
- official development assistance as a share of gross national income [sdg_17_10] 0.73;;
- adult participation in learning in the past four weeks by sex [sdg_04_60] 0.56
- investment share of GDP by institutional sectors [sdg_08_11] 0.56;
- digital intensity by NACE Rev.2 activity [isoc_e_diin2\$defaultview] 0.52.

Persons at risk of poverty or social exclusion [sdg_01_10] with:

- gender employment gap, by type of employment [sdg_05_30] 0.75;
- official development assistance as a share of gross national income [sdg_17_10] 0.70;
- digital intensity by NACE Rev.2 activity [isoc_e_diin2\$defaultview] 0.69;
- adult participation in learning in the past four weeks by sex [sdg_04_60] 0.65;
- exports of goods and services in % of GDP [tet00003] 0.55.

The most indirect statistical dependencies with large negative values $-0.50 = <-1.00$ are shown by indicators:

Water exploitation index, plus (WEI+) [sdg_06_60] with:

- gender employment gap, by type of employment [sdg_05_30] -0.90;
- official development assistance as a share of gross national income [sdg_17_10] -0.87;
- persons at risk of poverty or social exclusion [sdg_01_10] -0.79;
- exports of goods and services in % of GDP [tet00003] -0.57;
- adult participation in learning in the past four weeks by sex [sdg_04_60] -0.55;
- investment share of GDP by institutional sectors [sdg_08_11] -0.54.

Share of renewable energy in gross final energy consumption by sector [sdg_07_40] with:

- digital intensity by NACE Rev.2 activity [isoc_e_diin2\$defaultview] -0.84;
- persons at risk of poverty or social exclusion [sdg_01_10] -0.84;
- exports of goods and services in % of GDP [tet00003] -0.75;
- adult participation in learning in the past four weeks by sex [sdg_04_60] -0.57;
- official development assistance as a share of gross national income [sdg_17_10] -0.52.

When we analyse the biggest statistical dependences with the largest values it can be seen that there is an indirect statistical dependence with logical connections between the water exploitation index, plus (WEI+) [sdg_06_60], and the gender employment gap, by type of employment [sdg_05_30] with the value -0.9. Increasing women's employment by 1 unit generates a lower gender employment gap while at the same time increases the water exploitation index in industry processes by 0.9 unit. This indicator measures total water consumption as a percentage of the renewable freshwater resources available for a given territory and period.

In addition, there is a direct statistical dependence with logical connections between the gender employment gap, by type of employment [sdg_05_30], and the persons at risk of poverty or social exclusion [sdg_01_10] with the value 0.75. Increasing women's unemployment by 1 unit generates a larger gender employment gap while at the same time increases the number of persons at risk of poverty or social exclusion by 0.75 units.

From our examination, we can define the macro indicators with the lowest statistical dependencies among 12 selected related macro indicators:

- gross domestic expenditure on research and development [gerd];
- gross domestic expenditure on R&D by sector [sdg_09_10];
- gross value added in the environmental goods and services sector [sdg_12_61].

The results of our analysis show that interactions among 12 selected related macro indicators in each home resident country have had a positive impact on country financing and state budgets.

After our argument summarisation, we can confirm Hypothesis 4: there is an internal statistical dependency between 12 selected related macro indicators from Eurostat in each company's home resident country.

Hypothesis 5

The country with the highest rating (points for 12 indicators) also has the most advanced management of corporations, with a successfully institutionalised ESG conduct.

We continued our analysis by assigning evaluation points for each of 12 selected related macro indicators from Eurostat in each company's home resident country (Figure 3) and comparing this country rating and corporation members of CSR Europe with the above-standard rating of ESG conduct (Table 11).

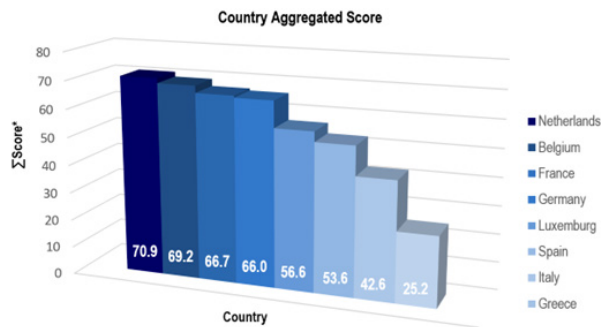


Figure 3 Aggregated Score for 12 Macro Indicators in Each Home Resident Country of Headquarters

Source: Constructed by authors

Table 11 Corporation Members of CSR Europe with the Above-Standard Rating of ESG Conduct

Corporation Members of CSR Europe	Country of the Headquarters	Σ Score
Total Energies	France	35.96
Enel	Italy	32.55
Iberdrola	Spain	31.24
Engie	France	30.45
BASF	Germany	30.13
Iveco Group	Italy	29.73
Orange	France	29.50
Leonardo	Italy	28.79
Pirelli	Italy	27.89

Note: Total score higher than Modus Value 27.8 points

Source: Constructed by authors

Our comparison of the country rating and corporation members of CSR Europe with the above-standard rating of ESG conduct reveals important facts. According to the consolidated financial statements, companies with the highest score of ESG conduct are located in four countries: France, Italy, Spain, and Germany. The top three in terms of aggregate score of a headquarters' resident country are located in the Netherlands, Belgium and France. On this basis of the credible macro-economic positions of the Netherlands and Belgium, we can identify a positive impact on other companies that

are not members of CSR Europe and who have their corporate headquarters in these countries.

After summarising our argument, we can partially confirm hypothesis 5: the country with the highest score (points for 12 indicators) also has the most advanced company management, with successfully institutionalised ESG behaviour.

PRACTICAL IMPLICATIONS OF THE RESEARCH RESULTS

Our analysis shows that the literature focuses more on sustainability in alternative forms; this generally means corporate social responsibility, the UN's 17 SDGs and ESG. Within reputable literature, only a few sources address the legal obligation to apply the CSRD Directive to companies in the EU, including determinants, parameters and other conditions for the effective implementation of the ESG strategy; the desired results are produced in the form of an integrated annual report. The most current information from the EU is regarding ESG omnibus rules and Voluntary Sustainability Report Standard for SMEs (VSME). Standards are relevant for practical ESG strategies; we can only find this information on the EFRAG website and credible auditor companies (KPMG, PwC, Deloitte, EY, etc.).

Objective facts are the reason why responsible and trustworthy companies are members of associations operating in EU countries (e.g., CSR Europe, Business Leader Forum in Slovakia, Responsible Company in the Czech Republic, etc.) and corporations based on other continents. To facilitate the implementation of the corporate ESG strategy, the majority of the analysed companies, members of CSR Europe, are affiliated with the UN Global Compact (74%), in parallel – primarily for ESG behaviour on other continents.

The most important information for motivation and practical application of the research results are:

- an internally structured sustainability content, a typical practical example of the operational activities of responsible companies in EU countries, where sustainability is applied in the three previously mentioned alternative forms (corporate social responsibility, the UN's 17 SDGs, ESG) based on ESRS standards and membership of the UN Global Compact and its 10 principles; and
- structuring the responsibility of the entity for the institutionalisation of sustainability in companies.

It is simpler and more understandable to describe the current situation of ESG conduct in CSR Europe companies within three dimensions discussed below.

The 1st Dimension → Company

Corporate processes and measures in the area of the “G” pillar have a major impact on the social area, partly on the environmental area (Hypothesis 1). Environmental behaviour generates positive results in terms of annual turnover, mostly directly, and measures in the area of the “S” pillar have a partial indirect impact on annual turnover. ESG behaviour management determines the model of functioning of the standard values of ESG behaviour. A total of 39.13% of all companies associated with CSR Europe with headquarters in EU countries implemented an effective ESG strategy, not only with an effective impact on the parameters “E”, “S” and “G”, but also synergistically and profitably (by annual turnover) (Hypothesis 2). This corporate dimension is the most important attribute of entrepreneurship, as it represents the free decision of company owners to conduct business responsibly according to ESG ethical principles and determines each of the four other dimensions.

Potential limits and barriers

There is a complicated CSRD methodology for multinational corporations and SMEs, a risk of high tariffs for businesses outside the US, expensive quality experts for ESG strategies, etc.

Recommendations for improvements to ESG conduct in enterprises

It is recommended that ESG Omnibus rules and VSME Standards are applied, the advice of credible auditor companies (e.g., KPMG, PwC, Deloitte, EY) is used, and experiences and skills with enterprises in the same business sector (e.g., in associations), are communicated.

The 2nd Dimension → Country

The most visible process is the largest dependence between the company parameters “G” and the selected related macro indicators of the 17 SDGs (Hypothesis 3). The visualisation seen in Figure 6 shows very frequent statistical dependence between the 12 selected related macro indicators, as 21% of the statistical dependencies show a value higher than 0.5 (positive and negative) for direct or indirect statistical dependencies (Hypothesis 4). In this section we have the opportunity to identify:

- partial influence (from dependence) of ESG indicators of companies on macro indicators of sustainability, with the largest value of “G”;
- large and frequent dependencies between macro indicators of the sustainability of resident countries.

From document analyses and communication with ESG managers in these companies, we found that they often use the extensive networking provided by this association: advisory and consulting activities, information and education activities, training and dissemination activities. We found that all of these CSR Europe actions have a positive impact on the results of member companies and their European subsidiaries: membership is voluntary and motivates stable ESG behaviour. CSR Europe strongly supports the implementation of an ESG strategy with positive effects on the entire population. This fact is also proven by our results.

Potential limits and barriers

There could be budgetary restrictions in countries with complicated economic situations, minimal governmental stimulants (taxes, grants, bonuses) for ESG conduct, expensive resources generated by official country politics, etc.

Recommendations for improvements to ESG conduct at the country level

It is recommended that governmental stimulants are applied (taxes, grants, bonuses) for ESG conduct within the population and businesses to create co-operative networking of economical entities, cost and parallel support for ESG conduct in economic entities are reduced, and motivating ESG behaviour in official state institutions is institutionalised.

The 3rd Dimension → Macro-level

ESG association conduct of CSR Europe and UN Global Compact

Our analysed companies that are affiliated with CSR Europe with headquarters in EU countries are mostly (74%) organised in the UN Global Compact. The United Nations Global Compact is a non-binding pact of the United Nations, aiming to force businesses and companies worldwide to adopt sustainable and socially responsible policies and to report on their implementation. It is the largest global corporate sustainability and corporate social responsibility initiative with over 20,000 corporate participants and other stakeholders in over 167 countries (UN Global Compact, 2024). From document analyses and communication with ESG managers in these companies, we found intense interest in parallel involvement of corporate management in both organisations (CSR Europe and the UN Global Compact), with the aim of achieving stable successful results based on ESG behaviour in each organisational unit of the company.

Potential limits and barriers

The use of ESG rules according to the different requirements of different associations, complicated ESG management in multinational companies in different countries outside the EU, cultural, social, ethical and political differences in different countries, etc.

Recommendations for improvements ESG conduct at the macro-level

It is recommended that flexible, quality cross-country communication within multinational companies with internal and external stakeholders is implemented, that an effective ESG strategy is prepared by engaging with internal and external stakeholders, and that international/world associations at the macro-level act as representative leaders with the aim of creating the most flexible ESG strategies for their successful institutionalisation.

CONCLUSIONS

The results of our analyses confirm the stated objective of presenting and empirically explaining that the companies analysed, associated with CSR Europe and based in EU countries, are effectively implementing ESG strategies. These strategies yield positive results not only at the level of corporate performance indicators but also in the broader context of macro-economic indicators of individual countries and the overall sustainable prosperity of the EU. Our research therefore represents a relevant scientific contribution to validate and extend the veracity of the “studies on how institutions shape and influence prosperity” awarded the Nobel Prize in Economics in 2024 (RSAS, 2024). Based on the results, we can recommend continuing the ongoing process of implementing sustainable behaviour in companies in EU countries. This process should be in line with legislation such as the CSRD (Corporate Sustainability Reporting Directive) and further strengthen a systematic approach to ESG strategies at both micro and macro levels. Such an approach will promote the long-term stability and competitiveness of European companies while contributing to the Sustainable Development Goals and the overall prosperity of the region.

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BIOGRAPHY



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