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Identification of CSR Predictors in the Context of EU Countries Competitiveness: Empirical Analysis

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Katarzyna Brożek[1], Marek Leszczyński[2], Agata Szydlik-Leszczyńska[3]

Abstract:

Purpose: *This paper attempts to empirically identify predictors of corporate social responsibility (CSR) and assess their importance for the competitiveness of EU countries. The study aims to determine factors that facilitate the implementation of CSR practices and to examine the spatial variation in the level of CSR across EU countries in the context of regional competitiveness.*
Methodology: *This article analyzes the spatial variation in the level of advancement of CSR activities across EU countries. Six predictors related to CSR were first selected, followed by calculations using basic descriptive statistics. The source data was obtained from the Eurostat database. The Hellwig method was then used as a tool for the synthetic assessment of multidimensional phenomena. In the analysis, using this method, a synthetic measure was calculated for individual EU countries based on selected diagnostic variables related to CSR aspects. This allowed for comparison and grouping of EU countries – identifying leaders and countries with lower levels of advancement in CSR activities.*
Results: *Analysis of synthetic metrics allowed for the assessment and comparison of corporate social responsibility levels across EU countries. The results revealed significant variation across countries, with a clear predominance of Western European countries, such as Germany, France, and the Netherlands, which achieved higher CSR indicators. However, Central and Eastern European countries, including Romania, Bulgaria, and Croatia, ranked last, achieving very low levels of CSR.*
Practical implications: *The research provided a synthetic understanding of the complex aspects of CSR and identified EU countries requiring particular strengthening and intensification of sustainable development efforts, with particular emphasis on the need to implement CSR policies and practices.*
Originality/value: *The article contributes to the literature by empirically determining the Fquantification of predictors enables a quantitative assessment of the CSR levels in EU countries and provides a starting point for further in-depth research.*

[1]*PhD, Jan Kochanowski University in Kielce, Poland, Faculty of Law and Social Sciences, Institute of Management, Poland, e-mail: katarzyna.brozek@ujk.edu.pl;*
[2]*Professor, Jan Kochanowski University in Kielce, Poland, Faculty of Law and Social Sciences, Poland, e-mail: marek.leszczynski@ujk.edu.pl;*
[3]*Professor, Jan Kochanowski University in Kielce, Poland, Faculty of Law and Social Sciences, Institute of Management, Poland, e-mail: agata.szydlik-leszczynska@ujk.edu.pl;*

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1. Introduction

Contemporary enterprises operate in a dynamic environment that requires not only effective resource and process management but also the consideration of social, ethical, and environmental factors in development strategies. Corporate social responsibility (CSR) has gained importance as a crucial component of long-term management, responding to growing stakeholder expectations and institutional and regulatory pressures. Increasingly, CSR is not treated solely as a philanthropic activity, but as an integral element of a company's competitiveness strategy.

Understanding the factors (predictors) that determine the implementation of CSR practices is the subject of intensive analysis in the literature. However, there is a need to deepen our understanding of their impact on the competitive position of enterprises, especially in the context of diverse industry, institutional, and cultural conditions.

This paper attempts to empirically identify CSR predictors and assess their importance for enterprise competitiveness. The aim of this study is to identify factors that facilitate the implementation of CSR practices and to examine the spatial variation in CSR levels across EU countries in the context of regional competitiveness.

The analysis considers both internal organizational conditions and external determinants of the environment. Of particular interest is the relationship between CSR and corporate performance, considered in the context of strategic management and stakeholder theory. The study results can form the basis for recommendations for managers and public policymakers.

2. Internal and External Predictors of CSR

In the literature, predictors of corporate social responsibility are most often divided into two main groups: internal (endogenous) factors related to the characteristics of the company itself, and external (exogenous) factors resulting from the environment in which the organization operates (Aguinis and Glavas, 2012). Recognizing and understanding these determinants is a key element in analyzing the causes and

methods of implementing CSR strategies (Carroll and Shabana, 2010; Cristea *et al.,* 2022).

Internal predictors of CSR primarily include company size, financial condition, organizational structure, management culture, and strategic orientation (Waddock and Graves, 1997). Larger entities typically have greater resources, allowing them to undertake socially responsible activities; at the same time, they are more visible in the public sphere, which increases pressure for pro-social activities (Aguinis and Glavas, 2012). A company's financial health influences its ability to engage in activities beyond its core operations (Waddock and Graves, 1997).

Management's orientation and the dominant cultural values within the organization are also crucial – companies led by leaders with high ethical awareness are more likely to implement CSR (Carroll and Shabana, 2010). As observed by Porter and Kramer (2006), innovation and the degree to which CSR is integrated into a long-term competitive strategy can also play a predictive role.

External predictors of CSR are related to the institutional, regulatory, social, and industry environments. Strong pressure from stakeholders – such as consumers, investors, non-governmental organizations, and local communities – can significantly impact the scope of CSR activities (Carroll and Shabana, 2010; KPMG, 2022).

Legal regulations, both at the national and international levels (e.g. European Union directives), often impose reporting obligations on non-financial activities or promote specific sustainability standards (KPMG, 2022). The industry in which a company operates also determines its approach to CSR – Jamali and Karam(2018) remark that the energy, chemical, and clothing sectors typically demonstrate higher levels of engagement due to reputational social and environmental risks.

In addition, it is also worth remembering an observation given by Matten and Moon(2008), who indicate that cultural context and the level of social awareness are also important; in developed countries, expectations regarding corporate responsibility are typically higher.

3. CSR and Competitiveness

Corporate social responsibility is increasingly viewed not as a cost, but as a strategic investment that impacts the long-term competitiveness of enterprises. Contemporary management approaches assume that entities should consider not only the interests of shareholders but also a broad range of stakeholders – customers, employees, local communities, and the environment (Freeman, 1984). Corporate social responsibility translates into reputation, stakeholder trust, and customer loyalty – all of which are directly linked to competitive advantage (Porter and Kramer, 2006).

CSR can foster innovation, increase operational efficiency (e.g., by reducing waste or energy consumption), and attract qualified employees, which is particularly important in competitive labor markets (Aguinis and Glavas, 2012).

Furthermore, as Jamali and Karam (2018) report, companies that implement CSR are often better prepared for regulatory and social changes, demonstrating greater crisis resilience and strategic flexibility.

Research shows (KPMG, 2022; Pagkalou *et al.,* 2024a; 2024b) that consumers are increasingly guided by ethical values when choosing brands, and investors are paying attention to ESG (Environmental, Social, Governance) factors, which influences access to capital. CSR is therefore no longer just a PR tool but is becoming the foundation of sustainable development and a lasting competitive advantage. Therefore, implementing CSR can bring both social and economic benefits, strengthening an organization's market position and increasing its ability to compete in the long term (Carroll and Shabana, 2010).

4. Analysis of Selected Corporate Social Responsibility Indicators

To better understand the practical importance of corporate social responsibility, it is necessary to examine specific indicators that allow for the assessment of its implementation in enterprises. The first indicator analyzed refers to greenhouse gas emissions.The data are presented in Table 1.

Table 1. *Greenhouse gas emissions in 2015-2023 in all sectors in the EU-27 (in thousand tonnes)*

State/ year	2015	2016	2017	2018	2019	2020	2021	2022	2023	Average	Median	Kurtosis	Stand. dev
UE-27	3 494 765,7	3 492 158,6	3 565 184,3	3 546 756,16	3 395 486,42	3 103 023,05	3 268 592,55	3 192 217,86	2 907 204,13	3329487,64	3395486,42	-0,39	214230,88
Belgium	117 818,94	116 450,81	115 953,49	116 742,31	115 937,39	106 569,27	109 433,88	102 460,18	97 915,16	111031,27	115937,39	-0,70	6866,30
Bułgaria	52 852,91	48 418,05	50 230,85	45 787,33	44 760,12	38 716,25	44 899,85	49 305,72	36 763,85	45748,33	45787,33	-0,36	4969,01
Czech Rep.	117 895,26	120 794,09	123 141,32	125 679,52	126 296,22	119 492,63	121 829,2	116 453,96	98 918,22	118944,49	120794,09	5,30	7727,44
Denmark	50 543,68	53 424,85	50 923,15	52 558,68	47 581,15	44 702,74	44 533,68	42 362,75	38 785,37	47268,45	47581,15	-0,99	4715,93
Germany	907 557,4	906 164,04	886 219,13	936 055,34	870 169,04	809 649,27	824 513,99	824 396,18	740 673,13	856155,28	870169,04	-0,05	57865,79
Estonia	18 620,82	21 177,18	22 317,88	23 255,59	17 634,8	12 478,1	13 416,66	14 347,32	12 993,25	17360,18	17634,80	-1,82	3987,51
Ireland	64 378,09	65 727,0	67 031,2	65 591,3	63 899,3	62 325,3	64 530,5	62 615,6	58 828,9	63880,84	64378,09	1,61	2272,34

		3	6	7	8		8	9					
Greece	92 600,4	88 346,78	92 444,17	88 366,63	81 223,71	70 726,81	72 966,6	72 589,38	67 831,66	80788,46	81223,71	-2,05	9355,01
Spain	280 261,84	268 296,68	280 766,22	274 101,89	256 949,95	218 719,42	235 793,08	241 676,06	218 934,88	252833,34	256949,95	-1,65	23496,34
France	420 441,91	426 670,34	436 951,04	407 600,3	401 038,41	358 332,89	384 796,99	369 474,49	339 016,33	393813,63	401038,41	-1,02	31317,47
Croatia	19 065,41	19 225,92	20 889,28	19 155,89	19 092,31	18 241,09	18 665,88	19 656,76	19 893,21	19320,64	19155,89	1,56	718,72
Italy	401 571,53	396 023,58	406 748,92	379 585,1	369 720,91	340 171,95	374 094,92	373 694,33	331 152,95	374751,58	374094,92	-0,48	24364,02
Cyprus	8 029,77	8 579,18	8 628,51	8 523,5	8 127,22	7 771,26	7 949,71	8 043,46	8 192,92	8205,06	8127,22	-1,31	286,18
Latvia	11 039,73	9 220,2	7 818,35	10 793,5	8 930,59	11 036,66	12 703,5	15 819,26	14 610,42	11330,25	11036,66	-0,55	2489,97
Lithuania	12 238,34	13 205,32	13 982,63	14 725,07	14 614,49	14 437,54	14 349,34	12 607,99	12 633,63	13643,82	13982,63	-1,90	919,84
Luxembourg	9 880,53	9 540,87	9 807,81	10 246,52	10 293,55	8 519,39	8 701,05	7 469,27	7 093,26	9061,36	9540,87	-0,94	1116,18
Hungary	56 749,35	58 498,77	59 906,21	60 393,57	59 571,8	55 862,77	56 845,56	52 954,82	48 501,76	56587,18	56845,56	1,50	3609,44
Malta	2 147,89	1 852,64	2 019,83	2 020,05	2 133,06	2 094,82	2 101,13	2 260,46	2 246,88	2097,42	2101,13	0,81	117,70
Netherlands	199 934,32	200 248,37	196 696,54	191 432,87	185 251,49	168 299,62	170 589,49	157 023,08	146 440,98	179546,31	185251,49	-1,15	18625,51
Austria	75 274	72 194,71	78 205,06	81 272,8	86 642,59	73 728,92	74 711,51	73 308,68	76 225,91	76840,46	75274,00	1,67	4329,38
Poland	348 112,64	352 159,17	366 098,61	366 674,29	362 950,27	347 201	374 387,84	344 394,6	315 780,21	353084,29	352159,17	1,87	16440,23
Portugal	64 988,13	65 432,34	85 939,36	63 210,02	60 324,13	53 977,27	53 539,56	55 978,46	51 216,86	61622,90	60324,13	3,53	9917,85
Romania	68 389,82	64 327,26	69 095,25	71 774,65	68 578,14	62 410,88	67 583,11	63 981,14	57 437,67	65953,10	67583,11	0,53	4093,91
Slovenia	17 430,33	18 462,3	18 542,22	18 477,33	12 603,48	11 566,55	11 730,64	11 339,08	10 513,31	14518,36	12603,48	-2,39	3369,78
Slovakia	35 220,94	35 693,32	36 941,68	37 772,8	34 664,75	29 777,95	33 707,75	29 653,26	28 339,11	33530,17	34664,75	-1,42	3241,26
Finland	43 754,69	51 268,19	51 963,25	63 305,7	56 068,42	49 582,08	59 161,72	57 763,79	53 101,9	53996,64	53101,90	0,16	5462,86
Sweden	-2 032,96	756,62	5 922,2	11 653,5	10 429,0	6 630,6	11 055,3	10 587,6	13 162,4	7573,83	10429,05	-0,22	4939,80

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Source: *Own elaboration after https://ec.europa.eu/eurostat/databrowser/view/env_air_gge$defaultview/default/table.*

Average emissions vary significantly between countries – the highest average was recorded for Germany (856,155,000 tons) and France (393,813,000 tons), while the lowest were recorded for Malta (2,097,000 tons) and Cyprus (8,205,000 tons). Median emissions in most countries are close to the mean, indicating a relatively even distribution of values without significant deviations in either direction.

For some countries, such as the Czech Republic (kurtosis 5.30) and Portugal (kurtosis 3.53), the kurtosis index is positive, indicating a greater concentration of results around the mean and the possibility of single periods of extremely high emissions. Conversely, negative kurtosis values, observed in Greece (-2.05), Estonia (-1.82), and Slovenia (-2.39), indicate a flatter emission distribution, meaning a lower risk of extreme values.

The standard deviation, a measure of emissions variability over time, reveals significant variation in the dynamics of change between countries. The highest variability was observed in Germany (approximately 57,866,000 tons) and France (31,317,500 tons), suggesting that greenhouse gas emissions in these countries fluctuated more significantly during the analyzed period. Conversely, the lowest deviations were observed in Malta (118,000 tons) and Cyprus (286,000 tons), confirming the stability of emissions at a low level.

Both means and medians indicate clear differences between highly industrialized countries and smaller economies that generate relatively low amounts of greenhouse gases. The high standard deviation for the EU as a whole (214,231,000 tons) reflects the varying pace of emissions change across Member States. The observed statistical indicators confirm that while the overall trend points to emission reductions in most countries, the pace of change and the stability of these results remain variable.

It is worth noting that in many countries, such as Poland, Hungary, and Austria, standard deviation and positive kurtosis indicate greater emissions volatility and the possibility of outliers.

Meanwhile, countries with negative kurtosis and low deviation, such as Slovenia and Estonia, exhibit a more uniform emissions profile over time. Analyzing these four descriptive statistics allows for a better understanding not only of individual countries' emissions levels but also their variability and distribution, which is crucial for assessing the effectiveness of climate policies.

Another issue analyzed was the circular material use rate in the EU between 2015 and 2023 (Table 2).

Table 2. *Circular material use rate in 2015-2023 (in %)*

State/Year	2015	2016	2017	2018	2019	2020	2021	2022	2023	Average	Median	Kurtosis	Standard deviation
UE-27	11,2	11,4	11,5	11,6	11,2	11,2	11,1	11,5	11,8	11,39	11,40	-0,69	0,22
Belgium	18	18	19	20,6	20,5	22,9	21,4	18,3	19,7	19,82	19,70	-0,42	1,59
Bulgaria	3,1	4,3	3,4	2,4	4	5,8	4,3	3	4,9	3,91	4,00	-0,20	0,99
Czech Rep.	6,9	7,5	9,1	10,5	10,6	11,5	11	11,3	12,8	10,13	10,60	-0,45	1,82
Denmark	8,3	8	7,9	8,1	7,6	7,6	8,6	9,3	9,1	8,28	8,10	-0,73	0,58
Germany	11,6	11,8	11,6	12	12,4	12,8	12,2	12,5	13,9	12,31	12,20	2,29	0,68
Estonia	11,4	11,9	12,5	13,8	15,3	16,4	20	21,4	18,1	15,64	15,30	-1,21	3,40
Ireland	2,1	2	1,9	1,9	1,8	1,8	2,1	2,1	2,3	2,00	2,00	-0,39	0,16
Greece	1,8	2,1	2,5	3	3,3	4,2	5,3	6,3	5,2	3,74	3,30	-1,28	1,49
Spain	7,6	8,2	8,8	8,9	9	9,3	8,8	9,4	8,5	8,72	8,80	0,91	0,53
France	18,8	19,3	18,7	19,5	17,1	16,2	15,9	17,5	17,6	17,84	17,60	-1,36	1,23
Croatia	4,6	4,6	5,1	5	5,4	5,5	6,1	6,8	6,2	5,48	5,40	-0,69	0,71
Italy	17,2	17,8	18,4	18,8	18,8	20,6	19,7	20,6	20,8	19,19	18,80	-1,39	1,23
Cyprus	2,4	2,4	2,4	2,8	3,2	3,8	5,9	8,5	5,4	4,09	3,20	1,13	1,99
Latvia	5,3	6,6	5,5	4,7	4,8	5,2	5	4,5	5	5,18	5,00	3,59	0,58
Lithuania	4,1	4,6	4,4	4,3	3,9	4	4,1	4	3,9	4,14	4,10	-0,08	0,23
Luxembourg	9,6	7,1	10,6	10,8	9,1	9,4	8,5	12,3	10,2	9,73	9,60	0,69	1,40
Hungary	5,7	6,3	6,7	6,9	5,5	5,1	5	4,9	5,9	5,78	5,70	-1,29	0,69
Malta	4,6	4,2	6,5	8,3	12,8	16,5	19,2	21,5	19,8	12,60	12,80	-1,97	6,50
Netherlands	26,7	29	26,7	25,8	25,6	27,1	28,5	27,2	30,6	27,47	27,10	0,29	1,52
Austria	11,2	11,9	12	11,8	11,5	11,4	11,3	12,4	14,3	11,98	11,80	5,20	0,90
Poland	11,9	10,6	10,4	10,5	9,2	7,4	7	6,7	7,5	9,02	9,20	-1,75	1,80
Portugal	2,1	2,1	2	2,2	2,3	2,5	2,7	3,3	2,8	2,44	2,30	0,60	0,40
Romania	1,7	1,7	1,8	1,6	1,4	1,5	1,5	1,5	1,3	1,56	1,50	-0,66	0,15
Slovenia	8,7	8,7	9,8	10,1	10,2	9,9	8,9	8,3	8,8	9,27	8,90	-1,99	0,68
Slovakia	5	5,2	4,9	4,7	8,3	10,3	10,4	11,5	10,6	7,88	8,30	-2,29	2,74
Finland	4,9	3,8	4,4	4,4	4,5	4,4	5,1	5,4	2,4	4,37	4,40	3,06	0,82
Sweden	6,7	6,9	6,7	6,6	6,4	6,9	9,5	12,1	9,9	7,97	6,90	0,61	1,91

Source: *Own elaboration after: https://ec.europa.eu/eurostat/databrowser/view/env_ac_cur$defaultview/default/table.*

Mean values show significant variation between countries – the highest average material utilization rates were recorded in the Netherlands (27.47%), Belgium (19.82%), and Italy (19.19%), while the lowest were recorded in Romania (1.56%) and Ireland (2.00%).

In most cases, the median is very close to the mean, indicating a stable and even distribution of values, although in some countries, these differences are slightly more noticeable.

Analysis of kurtosis reveals interesting differences in the data distribution – in countries such as Austria (kurtosis 5.20), Latvia (3.59), and Finland (3.06), there is a

clear tendency for results to cluster around the mean with a few outliers. On the other hand, countries such as Slovenia (-1.99), Malta (-1.97), and Poland (-1.75) exhibit negative kurtosis values, indicating a flatter distribution without clear extremes. For the EU-27 as a whole, the kurtosis is -0.69, indicating a relatively even distribution of values over the analyzed period.

The standard deviation, a measure of variability, confirms significant differences between countries – the highest values are found in Malta (6.50), Estonia (3.40), and Slovakia (2.74), indicating significant volatility and changes in the indicator over time. The lowest deviations, less than 0.2 percentage points, were recorded in Romania (0.15) and Ireland (0.16), indicating a very stable but low level of recycled material use.

The average for the EU-27 as a whole is 11.39%, and the median is 11.40%, indicating that the level of circular material use in the European Union is moderate and relatively stable. It is worth noting the increase in the indicator in some countries, such as Estonia and Malta, which saw significant progress in increasing the share of secondary raw materials during the analyzed period (with the exception of 2023). Poland, on the other hand, shows a downward trend and a relatively high standard deviation (1.80), suggesting a lack of stable policies in this area.

Some countries, such as Italy, Belgium, and France, maintain high average material use levels with relatively low variability, indicating well-established efforts to promote a circular economy. Kurtosis and standard deviation indices help identify countries with unstable and fluctuating results, which may indicate challenges in maintaining sustainable changes. A comprehensive analysis of these data suggests that, despite noticeable differences between countries, the trend towards increasing the use of recycled materials in Europe is gradually strengthening. The CSR analysis also utilized the occupational accident rate (Table 3).

Table 3. *Accident rate at work in the EU-27 in 2015-2022*

Country/year	2015	2016	2017	2018	2019	2020	2021	2022	Average	Median	Kurtosis	Standard Deviation
UE-27	2 255 163	2 293 808	2 335 973	2 361 490	2 374 139	1 959 131	2 176 314	2 164 017	2240004,38	2274485,50	1,58	129328,00
Belgium	46 002	48 007	47 759	48 409	46 124	38 572	42 390	41 898	44895,13	46063,00	-0,50	3320,55
Bulgaria	1 802	1 690	1 764	1 794	1 731	1 494	1 581	1 634	1686,25	1710,50	-0,48	102,37
Czech Rep.	37 036	38 780	38 440	37 530	35 566	29 405	30 773	29 521	34631,38	36301,00	-2,03	3792,96
Denmark	29 246	29 888	29 807	30 991	30 670	32 980	37 806	32 539	31740,88	30830,50	3,27	2599,63
Germany	707 138	714 114	715 195	723 704	718 391	633 894	667 104	647 973	690939,13	710626,00	-1,34	33322,88
Estonia	5 273	5 440	5 402	5 216	5 040	4 362	4 512	4 312	4944,63	5128,00	-1,97	443,28
Ireland	11 520	10 228	15 317	11 764	8 379	7 579	9 595	12 494	10859,50	10874,00	0,25	2310,51

Greece	3 394	3 645	3 790	4 098	4 683	3 585	4 067	4 427	3961,13	3928,50	-0,78	412,37
Spain	312 542	331 612	353 311	367 900	398 108	307 949	356 001	379 507	350866,25	354656,00	-1,04	29698,34
France	465 887	463 396	465 451	490 562	493 701	381 609	447 161	418 429	453274,50	464423,50	0,76	35039,22
Croatia	9 973	10 119	10 942	9 455	8 108	6 640	7 698	7 822	8844,63	8781,50	-1,34	1388,90
Italy	239 385	239 136	239 217	230 723	221 546	169 303	203 733	215 933	219872,00	226134,50	2,21	22582,74
Cyprus	1 377	1 634	1 803	1 887	1 943	1 343	1 243	1 177	1550,88	1505,50	-2,00	284,00
Latvia	1 377	1 445	1 520	1 756	1 867	1 649	1 910	1 927	1681,38	1702,50	-1,79	202,56
Lithuania	2 758	2 938	3 338	3 229	3 954	3 269	3 891	3 967	3418,00	3303,50	-1,60	439,14
Luxembourg	6 273	6 102	5 679	6 273	6 160	5 043	5 412	5 377	5789,88	5890,50	-1,57	445,06
Hungary	17 013	22 429	20 858	19 580	19 806	20 210	19 666	21 086	20081,00	20008,00	2,06	1460,09
Malta	1 939	1 476	1 544	1 696	1 815	1 281	1 315	1 269	1541,88	1510,00	-1,33	238,33
Netherlands	53 683	58 363	64 872	63 777	64 238	56 520	56 239	59 327	59627,38	58845,00	-1,65	3939,30
Austria	51 224	52 736	51 833	53 124	51 654	43 232	47 568	46 529	49737,50	51439,00	-0,20	3317,68
Poland	62 421	63 382	64 371	60 431	61 084	47 383	51 713	49 567	57544,00	60757,50	-1,74	6385,73
Portugal	113 392	111 936	116 148	110 094	110 954	91 421	100 080	104 113	107267,25	110524,00	0,68	7684,97
Romania	3 597	3 860	4 134	4 211	4 298	3 613	2 429	2 692	3604,25	3736,50	-0,49	652,78
Slovenia	10 204	9 943	10 956	10 889	10 858	9 197	9 847	9 545	10179,88	10073,50	-1,52	622,66
Slovakia	7 948	8 351	8 571	8 598	8 164	6 635	6 801	6 572	7705,00	8056,00	-2,08	827,67
Finland	30 871	30 129	30 964	30 406	29 663	26 431	27 114	26 555	29016,63	29896,00	-2,03	1843,28
Sweden	21 888	23 028	22 987	23 393	25 634	24 532	28 664	27 823	24743,63	23962,50	-0,89	2283,02

Source: *Own elaboration after: https://ec.europa.eu/eurostat/databrowser/view/hsw_mi01$defaultview/default/table.*

The average number of accidents for the EU-27 as a whole was approximately 2.24 million per year, while the median was slightly higher at 2.27 million, suggesting a relatively even distribution of values, although with a slight preponderance of periods with higher accident numbers. Among the Member States, the highest averages were recorded in Germany (690,939), France (453,275), and Spain (350,866), while the lowest were recorded in Cyprus, Latvia, and Malta, where the number of accidents hovered around 1,500 per year.

Kurtosis analysis reveals significant differences in the data distribution – positive kurtosis values occur in countries such as Denmark (3.27), Italy (2.21), and Hungary (2.06), indicating a greater concentration of results around the mean and the possibility of individual periods with extremely high accident numbers. Negative

kurtosis values, which dominate in most of the analyzed countries (e.g., Slovakia: -2.08, Czech Republic: -2.03, Finland: -2.03), indicate flatter distributions, in which changes in the number of accidents are less abrupt and more dispersed.

The standard deviation, a measure of the variability of the number of accidents over time, shows significant variation between countries. The highest variability was recorded in France (35,039), Germany (33,323), and Spain (29,698), which may indicate significant fluctuations resulting from factors such as economic changes, working conditions, or legislative changes. The lowest standard deviations, and therefore the greatest stability, are observed in Bulgaria (102), Latvia (203), and Malta (238), indicating a relatively constant, albeit low, number of occupational accidents in these countries.

A comparison of means and medians indicates that these values are similar in most countries, suggesting a lack of strong abrupt trends or extreme values. In Poland, the average number of accidents was 57,544, with a median of 60,758 and negative kurtosis (-1.74), reflecting a decline in the number of accidents in recent years, but also some variability confirmed by a relatively high standard deviation (6,386).

For countries such as Italy and Denmark, positive kurtoses and high deviations may indicate periodic increases in the number of accidents, requiring analysis of the causes of these spikes. Conversely, negative kurtoses in most countries, with relatively low deviations, indicate relative predictability and a lack of sudden changes in the number of accidents. However, it is worth noting that in some countries, such as Hungary and Sweden, despite relatively low absolute numbers, there is noticeable variability, which may indicate instability in working conditions.

Overall, analysis of statistical indicators shows that despite the general trend of decreasing accident rates in most EU countries, their incidence rates and the dynamics of change remain diverse, with some countries exhibiting significantly greater fluctuations than others. Taking into account the mean, median, kurtosis, and standard deviation allows for a better understanding of the nature of changes and the stability of the occupational safety situation in individual Member States.

In discussing the predictors of CSR, the unadjusted gender pay gap indicator for the years 2015-2023 was analyzed (Table 4).

Table 4. *Unadjusted gender pay gap 2015-2023 in EU-27 (%)*

State/Year	2015	2016	2017	2018	2019	2020	2021	2022	2023	Average	Median	Kurtosis	Standard deviation
UE-27	15,5	15,1	14,6	14,4	13,7	12,7	12,3	12,2	12,0	13,61	13,70	-1,86	1,27
Belgium	6,4	6,0	5,8	5,8	4,7	3,2	1,8	0,7	0,7	3,90	4,70	-1,77	2,21
Bulgaria	15,5	14,6	14,3	13,9	14,0	12,5	11,9	12,6	13,5	13,64	13,90	-0,63	1,08
Czech Rep.	22,5	21,5	21,1	20,1	19,3	16,7	15,4	18,4	18	19,22	19,30	-0,82	2,20
Danmark	15,1	15,1	14,8	14,6	17,7	13,8	14,2	13,8	14	14,79	14,60	4,84	1,14
Germany	21,8	21,1	20,4	20,1	19,2	18,3	17,6	17,7	17,6	19,31	19,20	-1,55	1,52

Estonia	26,7	24,8	24,9	21,8	21,6	21,0	20,3	21,1	16,9	22,12	21,60	0,12	2,77
Ireland	13,9	14,2	14,4	11,3	10,3	9,0	9,9	9,3	8,6	11,21	10,30	-1,74	2,22
Greece	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data	no data
Spain	14,1	14,8	13,5	11,9	9,6	9,3	9,3	9,2	9,2	11,21	9,60	-1,77	2,23
France	15,6	15,9	16,3	16,7	16,0	15,0	13,7	12,8	12,2	14,91	15,60	-0,99	1,53
Croatia	b/d	11,6	12,3	11,4	10,2	8,7	7,3	7,7	7,4	9,58	9,45	-2,08	1,92
Italy	5,5	5,3	5	5,5	4,6	4,0	4,7	3,8	2,2	4,51	4,70	2,08	1,00
Cyprus	13,2	12,3	11,2	10,4	10,5	9,9	11,0	11,9	12,2	11,40	11,20	-0,85	1,01
Latvia	18,4	19,7	19,8	19,6	21,6	23,2	15,9	18,9	19	19,57	19,60	1,33	1,91
Lithuania	14,2	14,4	15,2	14,0	12,9	12,3	10,9	10,5	11,5	12,88	12,90	-1,53	1,58
Luxembourg	4,7	3,9	2,6	1,4	0,9	0,3	-0,2	-0,7	-0,9	1,33	0,90	-0,90	1,89
Hungary	14,0	14,0	15,9	14,2	18,2	17,1	17,2	17,5	17,8	16,21	17,10	-1,84	1,63
Malta	10,7	11,6	13,2	13,0	10,5	7,9	7,2	5,8	5,1	9,44	10,50	-1,58	2,86
Netherlands	16,1	15,6	15,1	14,7	14,9	14,7	14,3	14,0	12,5	14,66	14,70	1,92	0,97
Austria	21,8	20,8	20,7	20,4	20,0	19,2	19,1	18,7	18,3	19,89	20,00	-0,88	1,08
Poland	7,3	7,1	7,0	8,5	6,5	4,5	6,2	7,8	7,8	6,97	7,10	1,93	1,09
Portugal	16,0	13,9	10,8	8,9	9,4	8,3	7,1	6,3	8,6	9,92	8,90	0,38	2,99
Romania	5,6	4,8	2,9	2,2	2,6	0,9	1,4	1,5	3,8	2,86	2,60	-0,71	1,51
Slovenia	8,2	8,1	8,4	9,3	7,5	2,4	2,7	6,8	5,4	6,53	7,50	-0,56	2,37
Slovakia	19,7	19,2	20,1	19,8	18,2	15,4	16,0	16,8	15,7	17,88	18,20	-2,07	1,81
Finland	17,5	17,5	17,1	16,9	16,7	16,9	16,9	16,0	16,8	16,92	16,90	1,67	0,42
Sweden	14,0	13,3	12,5	12,1	11,1	10,5	10,3	10,4	11,2	11,71	11,20	-0,95	1,26

Source: *Own elaboration after: https://ec.europa.eu/eurostat/databrowser/view/sdg_05_20/default/table.*

The average pay gap for the EU-27 was 13.61%, and the median was 13.70%, indicating relative stability, although a downward trend has been noticeable in recent years. The largest average differences were recorded in Estonia (22.12%), Austria (19.89%), Latvia (19.57%), Germany (19.31%), and the Czech Republic (19.22%), while the lowest were in Luxembourg (1.33%), Romania (2.86%), Belgium (3.9%), and Italy (4.51%).In most countries, the median and mean values are similar, indicating that the data distribution is not distorted by single, extreme observations.

Kurtosis reveals differences in the shape of the distribution – positive values, such as those in Denmark (4.84), Italy (2.08), and Finland (1.67), suggest greater concentration of data around the mean and the possibility of outliers. Negative kurtosis values, prevalent in most countries (e.g., Slovakia -2.07, Croatia -2.08, Malta -1.58), indicate flatter distributions, meaning fewer extreme deviations over time.

The standard deviation shows how much wage differences have fluctuated over time – the highest variability was recorded in Portugal (2.99), Malta (2.86), and Estonia (2.77), indicating significant fluctuations in the wage gap. In countries such as Finland, the Netherlands, and Italy, the standard deviation remains low, indicating stable wage inequality.

Poland, with a mean of 6.97% and a median of 7.10%, ranks below the EU average, with moderate variability (standard deviation 1.09), indicating small but relatively stable wage differences.In some countries, such as Belgium and Luxembourg, the wage gap has almost completely disappeared, reaching its minimum in recent years.

Despite periodic declines, the pay gap in Estonia, the Czech Republic, and Germany remains one of the highest in Europe. Table 5 summarizes data on migrant employment in the EU-27 from 2015 to 2023.

Table 5. *Employment of emigrants in 2015-2023 (in thousands of people)*

State/Year	2015	2016	2017	2018	2019	2020	2021	2022	2023	Average	Median	Kurtosis	Standard deviation
UE-27	188 424,9	191 034,9	192 830,1	194 795,4	191 680,5	192 571,	196 945,1	199 013,1	200 749,9	194227,21	192830,10	-0,73	3774,16
Belgium	4 541	4 587	4 699	4 770,7	4 740,6	4 794,7	4 920,9	4 954,1	4 981,1	4776,59	4770,70	-1,09	146,57
Bulgaria	2 954,3	3 073,4	3 068,9	2 946,	2 833	2 785,4	2 840,7	2 822	2 820,8	2904,96	2840,70	-1,14	103,78
Czech Rep.	5 015,9	5 093,9	5 146,8	5 151,	5 086,9	5 066,1	5 022	4 890,3	5 010,4	5053,67	5066,10	1,05	76,04
Denmark	2 667,5	2 698	2 739,3	2 779,1	2 753,3	2 794,3	2 864,2	2 881,3	2 920,2	2788,59	2779,10	-1,06	80,47
Germany	40 165,1	40 481,6	40 635,7	41 065	40 155,2	39 502,8	40 401,7	40 816,	40 923,6	40460,76	40481,60	0,78	451,99
Estonia	606,6	617,8	622,4	626,	611,5	616,1	637	652,7	653,9	627,06	622,40	-0,82	16,18
Ireland	2 066,4	2 125	2 180,	2 238,5	2 203,9	2 325,	2 490,9	2 570,7	2 636,3	2315,20	2238,50	-1,27	192,63
Greece	3 610,3	3 682,7	3 751,1	3 825	3 780,3	3 822,8	4 030,2	4 078,2	4 145,9	3858,46	3822,80	-1,13	174,14
Spain	18 182,7	18 648,5	19 136,3	19 567,9	18 958	19 546,2	20 234,7	20 851,5	21 300,1	19602,82	19546,20	-0,69	966,39
France	26 239,1	26 434,3	26 646,1	26 710,9	26 563,1	27 273,9	27 815,5	28 012,	28 363,6	27117,61	26710,90	-1,39	730,13
Croatia	1 524,3	1 540,8	1 551,8	1 561	1 540,8	1 558,6	1 579,2	1 589,3	1 652,9	1566,57	1558,60	3,13	35,83
Italy	22 241,1	22 443,6	22 355,9	22 465,4	21 943,4	21 849,2	22 412,5	22 834,9	23 150,	22410,67	22412,50	0,32	379,47
Cyprus	353,9	369,8	389,7	411,4	415,5	428,3	448,9	463,2	470,6	416,81	415,50	-1,08	38,21
Latvia	862,3	861,9	873,3	870,3	852,2	822,	840	833,4	825	848,89	852,20	-1,69	18,40
Lithuania	1 317,7	1 305,6	1 323,7	1 324,3	1 297,6	1 310	1 354,4	1 368	1 384,7	1331,76	1323,70	-0,71	28,44
Luxembourg	259,4	269,9	278,4	287,3	290,	302,8	308,7	317,7	320,1	292,70	290,00	-1,17	20,01
Hungary	4 309,4	4 373,4	4 401,4	4 419,2	4 346,6	4 511,2	4 561	4 577,3	4 573,8	4452,57	4419,20	-1,86	98,39
Malta	204,6	216,8	232,8	247,	253,4	260,5	277,3	296,5	312,7	255,73	253,40	-0,74	33,55
Netherlands	8 223,4	8 376	8 543,3	8 689,2	8 681,	8 975,1	9 233,9	9 386,9	9 412,9	8835,79	8689,20	-1,49	412,54
Austria	4 142,7	4 185,3	4 241	4 280,2	4 224,	4 231,7	4 357,2	4 394,3	4 395,1	4272,40	4241,10	-1,29	85,99
Poland	15 901,8	16 078,8	16 133,4	16 549,3	16 557,	16 742,9	16 811	16 865,1	16 771,3	16490,07	16557,00	-1,30	339,45
Portugal	4 380,4	4 524,6	4 627	4 664,	4 552,5	4 596,6	4 727,	4 823,	4 882,2	4641,96	4627,30	-0,14	145,55
Romania	8 166,1	8 363,2	8 381,8	8 407,9	8 272,2	7 667,6	7 728,3	7 613,5	7 771,4	8041,33	8166,10	-2,26	319,08

Slovenia	902,5	943,5	961,9	969,7	964,7	954,3	966,6	970,4	980,4	957,11	964,70	4,36	21,66
Skovakia	2 472	2 502,1	2 533,3	2 543,8	2 490,9	2 521,7	2 559,9	2 559,9	2 562,6	2527,32	2533,30	-1,09	31,20
Finland	2 379,5	2 402,6	2 464,8	2 487,	2 450,4	2 469,5	2 526,	2 532,	2 504,4	2468,47	2469,50	-0,50	48,96
Sweden	4 735,6	4 833,9	4 910,2	4 938,5	4 862,6	4 841,9	4 996,3	5 059,	5 024,	4911,33	4910,20	-0,66	98,05

Source: *Own elaboration after https://ec.europa.eu/eurostat/databrowser/view/lfsa_pganws$defaultview/default/table.*

The average number of employed emigrants in the EU-27 was 194.2 million, with a median of 192.8 million, indicating limited fluctuations and a stable upward trend.The highest averages were recorded in Germany (40.5 million), France (27.1 million), Italy (22.4 million), and Spain (19.6 million), while the lowest were recorded in Malta (255,700), Luxembourg (292,700), Cyprus (416,800), and Estonia (627,000).

In most countries, the median and mean values are very similar, suggesting a lack of extreme fluctuations and relatively predictable labor market developments for emigrants.

Kurtosis reveals that most countries are characterized by negative values of this indicator, such as Romania (-2.26), Hungary (-1.86), and Latvia (-1.69), indicating a flat distribution and no extreme deviations from the mean values.In a few cases, such as Slovenia (4.36) or Croatia (3.13), positive kurtosis indicates the occurrence of individual periods with values significantly deviating from the norm.

The standard deviation, a measure of variability in emigrant employment, shows clear variation – the highest variation occurred in Spain (966,400), France (730,100), and Germany (452,000), indicating dynamic changes in the employment levels of these groups.The smallest deviations were recorded in Estonia (16,200), Latvia (18,400), Luxembourg (20,100), and Slovenia (21,700), confirming the stability of the number of employed emigrants in these countries.

In Poland, the average number of employed emigrants was 16.5 million, with relatively low variability (deviation 339,500) and a stable distribution (kurtosis -1.30).For countries such as Malta, Cyprus, and Luxembourg, despite low absolute values, the level of employment of emigrants also remains relatively stable, as evidenced by low values of deviation and kurtosis.

Most countries are observing a moderate, gradual increase in the number of employed emigrants, which is consistent with the broader trend of increasing labor mobility in Europe.Analysis of statistical indicators reveals not only the magnitude of the phenomenon but also its dynamics and predictability in individual countries.

Table 6 summarizes data on the Corruption Perception Index for the EU from 2015 to 2023.

Table 6. *Corruption Perception Index in 2015-2023*

State/Year	2015	2016	2017	2018	2019	2020	2021	2022	2023	Average	Median	Kurtosis	Standard deviation
UE-27	65	64	64	64	64	64	64	64	64	64	64,00	9,00	0,31
Belgium	77	77	75	75	75	76	73	73	73	75	75,00	-1,45	1,52
Bulgaria	41	41	43	42	43	44	42	43	45	43	43,00	-0,31	1,25
Czech Rep.	56	55	57	59	56	54	54	56	57	56	56,00	0,40	1,49
Denmark	91	90	88	88	87	88	88	90	90	89	88,00	-1,50	1,29
Germany	81	81	81	80	80	80	80	79	78	80	80,00	0,79	0,94
Estonia	70	70	71	73	74	75	74	74	76	73	74,00	-1,27	2,05
Ireland	75	73	74	73	74	72	74	77	77	74	74,00	-0,48	1,63
Greece	46	44	48	45	48	50	49	52	49	48	48,00	-0,47	2,38
Spain	58	58	57	58	62	62	61	60	60	60	60,00	-1,64	1,77
France	70	69	70	72	69	69	71	72	71	70	70,00	-1,56	1,15
Croatia	51	49	49	48	47	47	47	50	50	49	49,00	-1,43	1,41
Italy	44	47	50	52	53	53	56	56	56	52	53,00	-0,11	3,98
Cyprus	61	55	57	59	58	57	53	52	53	56	57,00	-1,12	2,88
Latvia	56	57	58	58	56	57	59	59	60	58	58,00	-1,06	1,31
Lithuania	59	59	59	59	60	60	61	62	61	60	60,00	-0,80	1,05
Luxembourg	85	81	82	81	80	80	81	77	78	81	81,00	1,17	2,17
Hungary	51	48	45	46	44	44	43	42	42	45	44,00	0,88	2,79
Malta	60	55	56	54	54	53	54	51	51	54	54,00	1,92	2,57
Neherlands	84	83	82	82	82	82	82	80	79	82	82,00	0,78	1,40
Austria	76	75	75	76	77	76	74	71	71	75	75,00	-0,25	2,06
Poland	63	62	60	60	58	56	56	55	54	58	58,00	-1,43	3,01
Portugal	64	62	63	64	62	61	62	62	61	62	62,00	-0,80	1,05
Romania	46	48	48	47	44	44	45	46	46	46	46,00	-1,08	1,41
Slovenia	60	61	61	60	60	60	57	56	56	59	60,00	-1,40	1,94
Slowakia	51	51	50	50	50	49	52	53	54	51	51,00	-0,35	1,52
Finland	90	89	85	85	86	85	88	87	87	87	87,00	-0,92	1,73
Sweden	89	88	84	85	85	85	85	83	82	85	85,00	0,12	2,08

Source: *Own elaboration after: https://ec.europa.eu/eurostat/databrowser/view/sdg_16_50$defaultview/default/table.*

The EU-27 average for the Corruption Perception Index during the period under review was 64 points, similar to the median, indicating a relatively good, albeit uneven, level of transparency across Member States. The highest average values were achieved by the Scandinavian countries: Denmark (89), Finland (87), and Sweden (85), confirming their very low levels of corruption. The lowest averages were achieved by Bulgaria (43), Hungary (45), and Romania (46), indicating persistent corruption problems in these countries.

The median values are close to the mean, suggesting that the data were not significantly distorted by extreme outliers. Kurtosis shows that most countries have negative values for this index, e.g., Denmark (-1.50), Estonia (-1.27), and Poland (-1.43), indicating flatter distributions without sharp fluctuations or extreme values. Positive kurtosis values, such as those in Malta (1.92), Luxembourg (1.17), and

Hungary (0.88), suggest the presence of individual periods with significantly different results from the average.

Standard deviation allows us to assess the variability of corruption perceptions – the highest was observed in Italy (3.98), Poland (3.01), and Cyprus (2.88), indicating greater volatility of results and fluctuating assessments of the situation in these countries. The most stable scores, with the lowest deviations, were obtained in the EU-27 as a whole (0.31), Germany (0.94), Portugal, and Lithuania (1.05), indicating that ratings have remained at a similar level over time. In the case of countries such as Estonia and Latvia, a gradual increase in the index is noticeable, indicating improved transparency and reduced corruption.

For highly ranked countries such as Denmark, Finland, and Sweden, both the average and low variability of scores underscore the enduring nature of their high anti-corruption standards.

In countries such as Poland, Italy, and Hungary, analysis of all indicators reveals not only lower levels of perceived transparency but also greater dynamics of change, which may indicate institutional or political instability. Overall, the data in Table 6 reveals significant variation within the EU, both in terms of corruption levels and the pace of its change.

5. Synthetic Assessment of Selected CSR Indicators Using the Hellwig Method

The Hellwig method is a tool enabling the synthetic assessment of multidimensional phenomena, such as corporate social responsibility. In this section, CSR indicators for EU countries were calculated using the selected method, allowing for their comparison and the identification of leaders and countries with lower levels of CSR advancement.

In the analysis conducted using the Hellwig method, a synthetic indicator for EU countries was calculated based on selected diagnostic variables related to CSR aspects (Table 7). Germany achieved the highest synthetic indicator value (0.4056), indicating that this country is closest to the ideal model in terms of the analyzed indicators, thus distinguishing itself from other EU countries.

France (0.3320), the Netherlands (0.2731), and Spain (0.2604) also achieved high values, indicating a relatively favorable situation in terms of the examined CSR aspects and potentially higher sustainable competitiveness.

The lowest values for the measure were recorded for Romania (0.1131), Bulgaria (0.1431), and Croatia (0.1563), indicating that these countries are characterized by a greater distance from the model and a lower level of social responsibility development in a synthetic approach.

The coefficients of variation for individual diagnostic variables were high (often exceeding 200%), confirming the wide range of values and varying levels of advancement of CSR activities across countries.

The Hellwig method allowed not only for a synthetic assessment but also for the identification of countries with the highest and lowest levels of compliance with the adopted CSR model (Table 7).

Table 7. *Evaluation of synthetic metrics*

Kraj	Value of diagnosticvariables						Standardization						d_i	Synthetic measure M
	X_1	X_2	X_3	X_4	X_5	X_6	t_1	t_2	t_3	t_4	t_5	t_6		
Belgium	102 460,18	18	41 898	1	4 954	73,0	-0,21	1,17	-0,27	-1,79	-0,25	0,69	9,66	0,2019
Bulgaria	49 305,72	3	1 634	13	2 822	43,0	-0,29	-1,13	-0,36	0,23	-0,30	-1,51	10,37	0,1431
Czech Rep.	116 454	11	29 521	18	4 890	56,0	-0,18	0,12	-0,30	1,22	-0,25	-0,56	9,49	0,2156
Denmsrk	42 363	9	32 539	14	2 881	90,0	-0,31	-0,18	-0,29	0,43	-0,30	1,93	9,40	0,2227
Germany	824 396,18	13	647 973	18	40 816	79,0	0,98	0,30	1,17	1,10	0,71	1,13	7,19	0,4056
Estonia	14 347	21	4 312	21	653	74,0	-0,35	1,64	-0,36	1,68	-0,36	0,76	9,14	0,2442
Ireland	62 616	2	12 494	9	2 571	77,0	-0,27	-1,26	-0,34	-0,33	-0,31	0,98	9,95	0,1775
Greece	72 589,38	6	4 427	14	4 078, 2	52,0	-0,26	-0,63	-0,36	0,38	-0,27	-0,85	9,94	0,1785
Spain	241 676,06	9	379 507	9	20 852	60,0	0,02	-0,17	0,53	-0,35	0,18	-0,27	8,95	0,2604
France	369 474,49	18	418 429	13	28 012	72,0	0,23	1,05	0,62	0,26	0,37	0,61	8,08	0,3320
Croatia	19 656,76	7	7 822	8	1 589	50,0	-0,34	-0,56	-0,35	-0,60	-0,34	-1,00	10,21	0,1563
Italy	373 694,33	21	215 933	4	22 835	56,0	0,24	1,52	0,15	-1,27	0,23	-0,56	8,98	0,2575
Cyprus	8 043,46	9	1 177	12	463	52,0	-0,36	-0,30	-0,36	0,11	-0,37	-0,85	9,99	0,1743
Latvia	15 819,26	5	1 927	19	833	59,0	-0,35	-0,90	-0,36	1,30	-0,36	-0,34	9,92	0,1803
Lithuania	12 607,99	4	3 967	11	1 368	62,0	-0,35	-0,98	-0,36	-0,13	-0,34	-0,12	10,04	0,1698
Luxembourg	7 469	12	5 377	-1	318	77,0	-0,36	0,27	-0,35	-2,03	-0,37	0,98	10,07	0,1681
Hungary	52 954,82	5	21 086	18	4 577	42,0	-0,29	-0,84	-0,32	1,06	-0,26	-1,59	10,16	0,1601
Malta	2 260,46	22	1 269	6	297	51,0	-0,37	1,65	-0,36	-0,93	-0,37	-0,93	9,88	0,1837
Netherlands	157 023,08	27	59 327	14	9 387	80,0	-0,12	2,51	-0,23	0,47	-0,13	1,20	8,79	0,2731
Austria	73 309	12	46 529	19	4 394	71,0	-0,25	0,28	-0,26	1,27	-0,26	0,54	9,24	0,2360
Poland	344 394,6	7	49 567	8	16 865	55,0	0,19	-0,57	-0,25	-0,59	0,07	-0,63	9,58	0,2082
Portugal	55	3	104	6	4	62,0	-0,28	-1,08	-0,12	-0,84	-0,25	-0,12	10,03	0,1708

	978,46		113		823									
Romania	63 981,14	2	2 692	2	7 614	46,0	-0,27	-1,35	-0,36	-1,66	-0,18	-1,29	10,73	0,1131
Slovenia	11 339,08	8	9 545	7	970	56,0	-0,36	-0,33	-0,34	-0,76	-0,35	-0,56	10,07	0,1674
Slovakia	29 653,26	12	6 572	17	2 560	53,0	-0,33	0,15	-0,35	0,94	-0,31	-0,78	9,70	0,1984
Finland	57 763,79	5	26 555	16	2 532	87,0	-0,28	-0,77	-0,30	0,81	-0,31	1,71	9,55	0,2108
Sweden	10 587,67	12	27 823	10	5 059	83,0	-0,36	0,24	-0,30	-0,14	-0,24	1,42	9,41	0,2227
UE-27	31922 17,86	11, 50	216 401 7,00	12	199 013, 1	64,0	4,88	0,15	4,75	0,16	4,93	0,03	3,39	0,7200
Arithmeti cmean	**22801 5,56**	**10, 50**	**154 572, 57**	**11,2 5**	**142 15,2 3**	**63,64**	**0,0**	**0,0**	**0,0**	**0,0**	**0,0**	**0,0**	**9,35**	**0,2268**
Standard deviation	**60707 0,31**	**6,6 6**	**422 716, 99**	**5,88**	**375 06,7 6**	**13,64**	**1,0**	**1,0**	**1,0**	**1,0**	**1,0**	**1,0**	**1,37**	**0,1134**
Coefficie nt of variation	**266%**	**63 %**	**273 %**	**52 %**	**264 %**	**21%**							**15%**	**50%**
Max	**31922 17,86**	**27, 20**	**216 401 7,00**	**21,1 0**	**199 013, 10**	**90,00**	**4,88**	**2,51**	**4,75**	**1,68**	**4,93**	**1,93**	**10,73**	**0,7200**
Min	**2260,4 6**	**1,5 0**	**117 7,00**	**- 0,70**	**296, 50**	**42,00**	**-0,37**	**-1,35**	**-0,36**	**-2,03**	**-0,37**	**-1,59**	**3,39**	**0,1131**

Source: *Own elaboration and calculations.*

Table 8 presents a summary of the level of corporate social responsibility in EU countries, based on the obtained values of the synthetic measure M, calculated using the Hellwig method.The highest level of CSR was achieved across the European Union (EU-27), with an index of ~0.720, classifying it as a region with a high level of social responsibility.

Among individual countries, the highest index values were recorded for Germany (0.4056) and France (0.3320), with France classified as a country with a medium level of CSR, and Germany above this threshold, with a significantly better result than other EU countries.

Table 8. *Level of Corporate Social Responsibility in EU countries*

NUTS 2Region	SyntheticmeasureM$_1$	Syntheticmeasure M$_1$	Level of Corporate Social Responsibility
UE-27	0,719995942	0,719995942	HIGH
Germany	0,405619377	0,405619377	
France	0,332040069	0,332040069	AVERAGE
Netherlands	0,273116085	0,273116085	
Spain	0,260381968	0,260381968	
Italy	0,257452855	0,257452855	
Estonia	0,244248457	0,244248457	
Austria	0,235965794	0,235965794	
Dania	0,222690687	0,222690687	

Sweden	0,222655176	0,222655176	LOW
Czech Rep.	0,215572587	0,215572587	
Finland	0,210814882	0,210814882	
Poland	0,208187476	0,208187476	
Belgium	0,201855002	0,201855002	
Slovakia	0,198366952	0,198366952	
Malta	0,183707152	0,183707152	
Latvia	0,180259011	0,180259011	
Greece	0,178492955	0,178492955	VERY LOW
Ireland	0,177478542	0,177478542	
Cyprus	0,174305142	0,174305142	
Portugal	0,170778178	0,170778178	
Lithuania	0,169780844	0,169780844	
Luxembourg	0,168054032	0,168054032	
Slovenia	0,167362422	0,167362422	
Hungary	0,160051926	0,160051926	
Croatia	0,156285592	0,156285592	
Bulgaria	0,14309574	0,14309574	
Romania	0,113147562	0,113147562	

Source: *Own elaboration and calculations.*

Countries such as the Netherlands (0.2731), Spain (0.2604), Italy (0.2575), Estonia, Austria, and Denmark also achieved relatively high values on the synthetic indicator and were classified as having a medium level of development in terms of CSR activities. In contrast, the V4 countries, i.e., the Czech Republic, Poland, and Slovakia (excluding Hungary), were classified as having a low level of CSR, which may indicate certain deficits in the implementation of social responsibility activities compared to other countries.

The lowest CSR levels were recorded in Bulgaria (0.1431) and Romania (0.1131), which were classified as countries with a very low level of CSR. Overall, the analysis reveals a clear differentiation between Western and Northern European countries and Central and Eastern European countries, confirming the uneven implementation of CSR practices across the EU.

6. Conclusions

The analysis of selected economic, social, and environmental indicators indicates significant variation in the situation of European Union countries, which directly impacts the practices and importance of corporate social responsibility.

Results regarding greenhouse gas emissions, the use of circular materials, and the employment of migrants show that countries that actively implement pro-environmental and inclusive policies achieve better results in the areas of sustainable development.

At the same time, data on occupational accidents and wage inequality underscore the importance of corporate social responsibility in creating safe, fair, and ethical working conditions.

The results of the Corruption Perception Index confirm that transparency and a high level of integrity among public institutions and businesses are fundamental to building stakeholder trust and long-term competitiveness. CSR, as a strategic approach, should integrate environmental, social, and ethical aspects, supporting both the common good and business development.

In the face of global challenges such as climate change, migration, and social inequality, corporate responsibility is becoming not only a social expectation but a key factor in their success and sustainability.

Analysis of synthetic metrics allowed for the assessment and comparison of the level of corporate social responsibility across EU countries. The results revealed significant variation across countries, with Western European countries such as Germany, France, and the Netherlands clearly outperforming those with higher CSR indicators.

Meanwhile, Central and Eastern European countries, including Romania, Bulgaria, and Croatia, ranked lower, achieving very low CSR levels. Applying Hellwig's method enabled a synthetic approach to complex CSR aspects and identified areas requiring further development and strengthening of sustainable development efforts.

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