

ESG PERFORMANCE UNDER A COMMON REGULATORY FRAMEWORK: COMPARATIVE EVIDENCE FROM ROMANIA, POLAND, AND ADVANCED EU ECONOMIES

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Abstract: *This study provides a comparative assessment of ESG performance among listed companies in Romania and Poland, benchmarked against advanced European Union economies, within a shared regulatory setting shaped by the CSRD and the EU Taxonomy. Using Refinitiv/LSEG ESG scores (0–100) for 2024—both the overall score and the E, S, and G pillars—we combine descriptive statistics, mean-difference tests (Welch’s t-test and the Mann–Whitney test), and OLS (Ordinary Least Squares) regressions with industry fixed effects. Descriptively, Polish firms exhibit higher average ESG scores than Romanian firms; however, the Romania–Poland gap is not statistically robust once industry composition is accounted for. Relative to the advanced-EU benchmark, both countries underperform in the raw comparisons, yet the econometric results indicate that Romania remains significantly below the benchmark after controlling for industry, whereas the difference for Poland is not statistically robust. Pillar-level analyses do not reveal statistically significant differences when E, S, and G are examined separately, suggesting that the observed variation is largely driven by sample composition. Taken together, the results suggest only partial ESG convergence within Central Europe and a wider, persistent gap between Romania and the advanced-EU benchmark—highlighting how strongly sector mix can shape cross-country ESG comparisons.*

Keywords: *ESG performance; ESG convergence; sustainability reporting; Romania; Poland.*

JEL Classification: Q56; G32; G34; M14; L21

1. Introduction

The EU’s shift toward a more sustainable economy takes place against a backdrop of persistent structural differences among member states. Romania and Poland offer a useful comparison: they share a broadly similar regional and regulatory environment, yet differ in economic scale, energy intensity, and emissions patterns. In 2024, Poland reports a larger economy and higher income levels (GDP and GDP per capita), stronger growth, and lower unemployment—signals of greater macroeconomic resilience. Yet stronger macro fundamentals do not necessarily imply better ESG outcomes at firm level. While the two countries overlap on several structural dimensions, they diverge in trade openness and, most importantly, in their energy systems. Poland remains strongly coal-dependent and has higher per-capita CO₂ emissions, whereas Romania’s more diversified energy mix translates into a

different emissions profile. Even under the same EU-wide reporting and classification rules (CSRD and the EU Taxonomy), such structural contrasts can plausibly be reflected in ESG scores. For these reasons, a Romania–Poland comparison is methodologically warranted: it keeps the institutional framework broadly constant while allowing ESG performance to be examined within a region that remains uneven in its economic and energy foundations.

In the recent literature (2020–2025), research on ESG performance in the European Union highlights three dominant trends: (1) the persistence of sizeable gaps between Western European economies and those in Central and Eastern Europe, even under a shared regulatory framework; (2) the central role of institutional factors and sectoral structure in explaining cross-country variation in ESG scores; and (3) the impact of the shift toward mandatory sustainability reporting (CSRD) on data quality and comparability, with asymmetric effects between mature and emerging economies. Taken together, these trends suggest that a uniform regulatory architecture does not guarantee ESG convergence, and that comparative analyses should explicitly control for industry composition and institutional maturity.

Nevertheless, the literature that offers direct comparisons between emerging EU economies—particularly between Romania and Poland—remains limited. Existing studies often treat these economies in aggregate or benchmark them against the EU average without separating country effects from sectoral structure effects. Moreover, firm-level analyses of listed companies that explicitly control for industry composition and are benchmarked against advanced EU economies are still underexplored for Central and Eastern Europe. As a result, it remains unclear whether observed Romania–Poland ESG differences reflect a genuine country (institutional) effect or are primarily driven by differences in the sectoral composition of the samples. This study addresses these gaps, as detailed in the following sections.

This study makes two main contributions. First, it compares ESG performance in Romania and Poland within the same EU reporting architecture, and it does so while controlling explicitly for sectoral structure—so that differences driven by industry mix can be separated from country-specific effects. Second, by adding a benchmark group of advanced EU economies, it allows us to gauge how close Central European emerging markets are to the ESG levels observed in more mature settings and to identify gaps that may be obscured by simple descriptive comparisons.

2. Literature review

Research linking corporate governance, social responsibility, and financial performance delivers mixed—and often strongly context-dependent—results, shaped by institutional arrangements and the maturity of capital markets. For OECD firms, Hamad and Cek (2023) report that governance mechanisms are generally associated with stronger performance (e.g., ROA, ROE, EPS), but the magnitude of these effects varies widely across countries, reflecting differences in culture and institutional design. Evidence from Romania points in a similar direction: Dănescu et al. (2021) find that sound governance supports financial performance, yet its practical effectiveness is constrained by capital-market maturity. This point matters for a Romania–Poland comparison, as both are emerging EU economies but with distinct institutional trajectories.

The ESG/CSR literature has also expanded rapidly, but findings remain nuanced. Using data on listed firms from 58 countries, Luo et al. (2024) show a positive

association between ESG and financial performance, while emphasizing that the relationship is stronger where country-level governance is higher (political stability, regulatory effectiveness, and control of corruption). For Romania and Poland, differences along these dimensions may therefore help explain cross-country variation in the payoffs of ESG investments. Relatedly, Gunardi et al. (2017) argue that CSR can strengthen the governance–performance link, but mainly under specific institutional configurations rather than as a stand-alone driver.

For Romania, Bogdan et al. (2021)—drawing on ISO 26000—find that financially relevant effects come primarily from strategically oriented social responsibility initiatives, whereas sponsorship expenditure is not statistically significant. The distinction between strategic CSR and more ad hoc corporate philanthropy is useful when interpreting aggregate ESG scores, which can mask differences in the coherence and substance of firms' sustainability practices.

Țăran et al. (2026) emphasize the role of board characteristics—size, independence, and sustainability expertise—in shaping performance, noting that effects differ across countries depending on how deeply ESG criteria are embedded in governance structures. Taken together, this body of work confirms that the ESG–financial performance link is not universal, but mediated by institutional factors and by the relative weight of ESG pillars—making a direct Romania–Poland comparison relevant for testing how sensitive the relationship is to differences in institutional maturity.

Using European data for 2011–2020, Iwanicz-Drozdowska et al. (2025) document that countries that joined the EU later exhibit systematically lower ESG scores, particularly on the Social and Governance dimensions. They also note that cross-country comparisons are sensitive to measurement and aggregation choices, and that the ESG–growth relationship is dynamic: ESG improvements often follow GDP growth, while their economic effects materialize over the medium term. These findings support both benchmarking Romania and Poland against advanced EU economies and explicitly controlling for sectoral structure in any comparative analysis.

Birlan et al. (2025) extend the perspective to the subnational level by proposing a framework for measuring ESG performance across EU NUTS regions using PLS techniques suited to high-dimensional data. Their results indicate that governance—operationalized through indicators such as voice and accountability and control of corruption—is the main determinant of aggregate ESG performance, and that spatial disparities between northwestern regions and southern/southeastern regions remain persistent, with the two groups responding differently to external shocks such as the pandemic. A common regulatory framework therefore does not eliminate differences in institutional capacity—an implication that calls for caution when interpreting Romania–Poland comparisons.

Grigorescu et al. (2025), using a case study of a Romanian company, show that implementing CSRD requirements entails deep organizational change: redefining accounting roles, integrating ESG KPIs into budgeting, and adopting analytical tools such as an internal carbon price. Implementation is, however, hindered by fragmented data systems, limited ESG competencies, and low digitalization. This evidence suggests that, even under the same regulatory framework, implementation capacity differs substantially between Western European and Central/Eastern European economies—creating systematic variation in the quality of reported ESG scores that should be accounted for in comparative work.

Two insights from the reviewed literature are especially relevant for the empirical design. First, ESG scores differ across countries, but these differences are often strongly shaped by sectoral structure and the institutional environment; consequently, comparisons based solely on mean differences may conflate country effects with industry effects (Iwanicz-Drozdowska et al., 2025; Luo et al., 2024; Birlan et al., 2025). Second, emerging economies may lag behind advanced economies even under a shared regulatory framework, due to differences in implementation capacity and reporting quality (Grigorescu et al., 2025; Dănescu et al., 2021). Accordingly, we test whether the Romania–Poland difference persists after controlling for industry composition (H1).

H1: There are statistically significant differences in ESG performance between Romanian and Polish firms, but these differences are influenced by sectoral structure such that controlling for industry reduces or eliminates country effects.

Separately, we compare Romania and Poland to an advanced-EU benchmark (H2). H2: Romanian and Polish firms have ESG scores that differ significantly from the benchmark of advanced EU economies.

3. Data and methodology

The empirical analysis uses ESG scores provided by LSEG Data & Analytics (formerly Refinitiv), one of the most widely used international datasets for assessing firm-level sustainability performance. The scores are standardized on a 0–100 scale and reflect firms' transparency, policies, and performance across environmental, social, and governance dimensions. The main dependent variable is the aggregate ESG score (ESG Score). In complementary analyses, the overall score is decomposed into its three core pillars—Environment (E), Social (S), and Governance (G)—computed according to the LSEG methodology as aggregates of pillar-specific subcomponents. The analysis is cross-sectional and relies on 2024 scores, the most recent year available in LSEG at the time of data collection.

The sample is constructed from listed companies on European markets tracked via the Nasdaq European Market Activity platform, for which LSEG Data & Analytics reports ESG scores for 2024. For Romania, we include firms listed on the Bucharest Stock Exchange (BVB); for Poland, firms listed on the Warsaw Stock Exchange (GPW). A firm is retained if it meets three conditions simultaneously: the aggregate ESG score is available in LSEG, the firm can be assigned to an identifiable sector according to LSEG's classification, and it is actively listed on the relevant national exchange at the time of data collection. Firms from non-EU countries are excluded. The initial dataset includes 122 firms with an available aggregate ESG score.

Depending on the availability of additional variables (pillar scores and sector classification), we derive subsamples used at different stages of the analysis: 54 firms for the bilateral Romania–Poland comparison (28 from Romania and 26 from Poland), 68 firms for the extended benchmark comparison with advanced EU economies, and 84 observations for the pillar-level analysis. Differences in subsample sizes reflect incomplete data availability across variables; this approach allows us to use the maximum number of observations without compromising the coherence of each analysis. The dataset is organized as a unified file in which each firm is identified by country, sector, and the relevant ESG scores, ensuring traceability between raw data and reported results. Table 1 summarizes the variables used.

Table 1. Description of variables

Variable	Definition	Source	Scale
ESG Score	Firm's aggregate ESG score	LSEG (Refinitiv)	0–100
Environmental (E)	Environmental pillar score	LSEG	0–100
Social (S)	Social pillar score	LSEG	0–100
Governance (G)	Governance pillar score	LSEG	0–100
Dummy RO	1 if firm is from Romania	Author's calculation	0/1
Dummy PL	1 if firm is from Poland	Author's calculation	0/1
Industry	Firm's sector	LSEG	categorical

Source: author's processing based on LSEG Data & Analytics (Refinitiv ESG) data, 2024

To provide a clear picture of the sample composition, the distribution of firms by sector and geographic group is reported in Table 2.

Table 2. Distribution of firms by sector and group

Sector	Romania	Poland	Advanced EU	Total
Energy & Utilities	4	4	11	19
Bank & Insurance	4	4	11	19
Construction Materials	3	3	6	12
Food, Beverage & Tobacco	4	4	12	20
Retailers & Consum	3	3	6	12
Software & IT Services	3	2	6	11
Medicine	3	3	6	12
Other	4	3	10	17
Total	28	26	68	122

Source: author's processing based on LSEG Data & Analytics (Refinitiv ESG) data, 2024

For the econometric analysis, the aggregate ESG score is used as the dependent variable, while Romania and Poland membership is captured through country dummy variables together with industry fixed effects to isolate the role of industrial structure. To ensure methodological consistency, each stage of the analysis uses

an explicitly defined sample, and results are interpreted strictly within that sample's scope. The bilateral comparison, the benchmark analysis, and the pillar-level decomposition are conducted on distinct subsamples determined by data availability, thereby limiting distortions due to missing values and supporting robust interpretation.

The reference group consists of listed firms from five Western European EU economies—France, Germany, Denmark, Finland, and Sweden—selected using the same criteria applied to the Romania and Poland samples. These countries were chosen to reflect both capital market maturity and more advanced ESG implementation, providing a meaningful benchmark for assessing convergence among emerging Central European economies.

This approach enables interpretation in terms of relative differences against a common European benchmark. The analysis proceeds in three complementary steps. First, descriptive statistics compare means and distributions of ESG scores across the three groups—at the aggregate level and by pillars (E, S, G)—to identify initial differences. Second, the robustness of the observed differences is evaluated using mean-difference tests, combining Welch's t-test (which does not assume equal variances) with the Mann–Whitney test as a non-parametric alternative. Using both tests is appropriate given the relatively small sample size and potential departures from normality. Third, to separate country effects from industry composition, we estimate an OLS (Ordinary Least Squares) regression model. OLS estimates the coefficients of a linear model by minimizing the sum of squared deviations between observed and predicted values, and is widely used in cross-sectional settings. In this study, the OLS specification quantifies average ESG differences between Romania, Poland, and advanced EU economies while jointly controlling for sectoral structure. OLS is appropriate because the dependent variable—the ESG score—is continuous and the objective is to estimate mean differences between groups rather than to generate firm-level predictions. The estimated model is:

$$ESG_i = \alpha + \beta_1 RO_i + \beta_2 PL_i + \sum_k \gamma_k Industry_{ik} + \varepsilon_i$$

where:

- the ESG score of firm i (dependent variable; the aggregate score or, in separate analyses, the E, S, or G pillar score);
- the constant term (intercept);
- a dummy variable equal to 1 if firm i is from Romania and 0 otherwise;
- a dummy variable equal to 1 if firm i is from Poland and 0 otherwise;
- the omitted (reference) category consists of firms from the advanced EU economies;
- dummy variables for business sectors, where k indexes industries; these capture industry fixed effects;
- sector-specific coefficients that control for systematic differences across industries;
- the error term capturing unobserved factors that influence ESG scores.

Using an OLS model is appropriate in this context given the cross-sectional nature of the data and the objective of estimating average differences between groups. Industry fixed effects are introduced as sector dummy variables for each sector represented in the sample: Energy & Utilities, Bank & Insurance, Construction Materials, Food, Beverage & Tobacco, Retailers & Consum, Software & IT Services, Medicine, and Other. These controls capture systematic differences in ESG scores across industries that are independent of a firm's country of origin. This is important

because ESG performance varies structurally across sectors: firms in environmentally intensive industries—such as Energy & Utilities—may report higher ESG scores in response to stronger regulatory pressure, not necessarily because their practices are intrinsically superior. Without this control, observed differences between Romania, Poland, and advanced EU economies could simply reflect different industry mixes rather than genuine country effects. Including industry fixed effects therefore helps separate country effects from industry effects and improves the interpretability of the estimated coefficients.

4. Results and discussion

The descriptive analysis points to visible differences between Romanian and Polish firms in terms of the aggregate ESG score.

On average, Polish firms report higher ESG scores than Romanian firms. The differences are not uniform across the three ESG pillars; both their magnitude and pattern vary across Environment, Social, and Governance.

The score distribution appears more polarized for Romania, where both very high and notably low values are observed. Poland exhibits a more compact distribution, suggesting a more uniform level of ESG practices across firms.

Benchmarking against the reference group—advanced EU economies—helps assess the degree of ESG convergence. The gap is defined as:

The mean values and the computed gaps are reported in Table 3.

Table 3. ESG gap relative to the advanced-EU mean

Dimension	Advanced-EU mean	Romania (mean)	Romania (gap)	Poland (mean)	Poland (gap)
Environment	58.19	52.42	-5.78	64.63	6.43
Social	60.96	58.33	-2.63	65.44	4.48
Governance	56.12	56.50	0.38	55.94	-0.18

Source: author's processing based on LSEG Refinitiv ESG data (2024).

Pillar-level patterns differ across Romania, Poland, and advanced EU economies. On Environment, Poland records the highest mean score (64.63), exceeding even the advanced-EU mean (58.19), while Romania lags behind (52.42) and shows higher dispersion, consistent with sectoral heterogeneity or differences in the maturity of environmental practices. On Social, Poland again exceeds the advanced-EU mean (65.44 versus 60.96), while Romania is closer to the benchmark (58.33), with a smaller gap relative to Poland than for Environment. On Governance, the three groups report nearly identical mean scores—Romania (56.50), advanced EU (56.12), and Poland (55.94)—suggesting no meaningful structural differences on this dimension.

Overall, the descriptive results suggest that Poland is positioned more favorably than Romania in ESG terms, both in absolute levels and relative to advanced EU economies, with the largest differences on the Environment pillar. Romania also displays higher score variability, pointing to a more heterogeneous firm-level ESG performance distribution.

At the aggregate level, the mean ESG score is 46.25 for Romania and 57.19 for Poland, a difference of about 10.94 points in favor of Polish firms. However, without

statistical testing, this descriptive gap cannot be interpreted as evidence of a structural difference. We therefore extend the analysis by applying statistical tests of mean differences.

To test H1, we assess whether the difference in ESG scores between Romanian and Polish firms is statistically significant. The null hypothesis assumes no difference between the two distributions. To evaluate whether the observed gap is statistically robust, we apply two complementary tests reported in Table 4.

Table 4. Testing the significance of the ESG mean difference (Romania vs. Poland)

Test	Statistic	p-value	Conclusion ($\alpha = 0.05$)
Welch t-test (unequal variances)	$t = -1.37$	0.194	The difference is not statistically significant
Mann–Whitney U (non-parametric)	—	0.209	The difference is not statistically significant

Source: author’s calculations based on LSEG Refinitiv ESG data (2024).

Both tests indicate that the difference between Romanian and Polish ESG means is not statistically significant at the 5% level. While Poland records a higher mean, the evidence is insufficient to support a systematic difference between the two countries. The gap is therefore visible descriptively but not confirmed statistically.

In the second step of testing H1, we estimate an OLS regression with industry fixed effects to assess whether the Romania–Poland differences persist after controlling for industrial structure. The results show that once industry fixed effects are included, the country difference becomes statistically insignificant (coefficient = -2.29 ; $p = 0.761$). Moreover, the negative sign indicates that the initial descriptive advantage of Poland does not hold in the econometric specification. Overall, the Romania–Poland differences are not statistically robust after controlling for sectoral structure, suggesting that the aggregate ESG variation is driven primarily by the sample’s industry composition rather than by a systematic country effect.

These results are consistent with Iwanicz-Drozdowska et al. (2025), who show that ESG gaps between Eastern and Western European economies are often attenuated after controlling for structural factors, and with Birlan et al. (2025), who document that within-EU ESG disparities are driven more by institutional capacity than by country labels per se. The finding that the Romania–Poland difference disappears after industry controls also aligns with Luo et al. (2024), who emphasize that industry structure and country-level governance are stronger determinants of ESG performance than nationality alone. By contrast, Romania’s more pronounced gap relative to the advanced-EU benchmark—persisting after industry controls—is consistent with Grigorescu et al. (2025), who argue that CSRD implementation in emerging Eastern European economies is constrained by limited institutional capacity and fragmented data systems.

Accordingly, the evidence does not support a statistically meaningful structural difference between Romania and Poland in firm-level ESG performance.

This conclusion motivates a pillar-level analysis (Environment, Social, and Governance), which may reveal patterns that are not visible in the aggregate ESG score.

To identify the potential sources of Romania–Poland differences, we decompose the aggregate ESG score into the three core pillars: Environment (E), Social (S), and Governance (G), computed according to the LSEG (Refinitiv) methodology. Descriptively, Poland records higher mean scores than Romania on Environment (62.66 versus 50.21) and Social (64.76 versus 58.17). For Governance, mean values are close, with Romania marginally higher (54.67 versus 52.42). However, the applied tests (Welch's t-test and Mann–Whitney) indicate that the observed differences are not statistically significant at the 5% level for any pillar. Overall, the results suggest that the descriptive advantages—especially on Environment—do not reflect robust structural differences between the two economies and may instead be driven by sample heterogeneity and sectoral composition rather than a systematic country effect.

To test H2, we compare ESG scores for firms in Romania and Poland with those in advanced EU economies used as the benchmark. The null hypothesis assumes no significant differences between emerging and advanced economies. The mean ESG score for the advanced-economy group is 62.54, compared to 57.19 for Poland and 53.08 for Romania. Descriptively, this implies a gap of 5.35 points for Poland and 9.46 points for Romania relative to the advanced-EU mean. However, the applied tests (Welch's t-test and Mann–Whitney) indicate that these differences are not statistically significant at the 5% level. Thus, although advanced economies exhibit higher ESG scores, the observed differences are not statistically robust in the simple mean-difference tests.

For a more systematic assessment, we estimate a regression model in which the dependent variable is the ESG score and the key explanatory variable is a dummy for emerging-economy status (Romania and Poland). The estimated coefficient is negative (−7.11), suggesting lower ESG levels in emerging economies; however, the estimate is not statistically significant.

Overall, the results suggest that ESG differences between the two analyzed Eastern European economies and the advanced-economy group are largely descriptive rather than statistically demonstrated structural gaps. The observed variation may be influenced by sample size and sectoral composition.

The comparative analysis indicates that the Romania–Poland difference is visible descriptively but not statistically supported. Likewise, the comparison between emerging and advanced economies points to an apparent gap that is not statistically significant. Introducing controls for sectoral structure eliminates the Romania–Poland differences, suggesting that the initial variation is better explained by industry composition than by country-specific effects.

A simple convergence view is to evaluate the “distance” to the advanced-EU mean using the average gap (Figure 1): Romania −11.88, Poland −5.49.

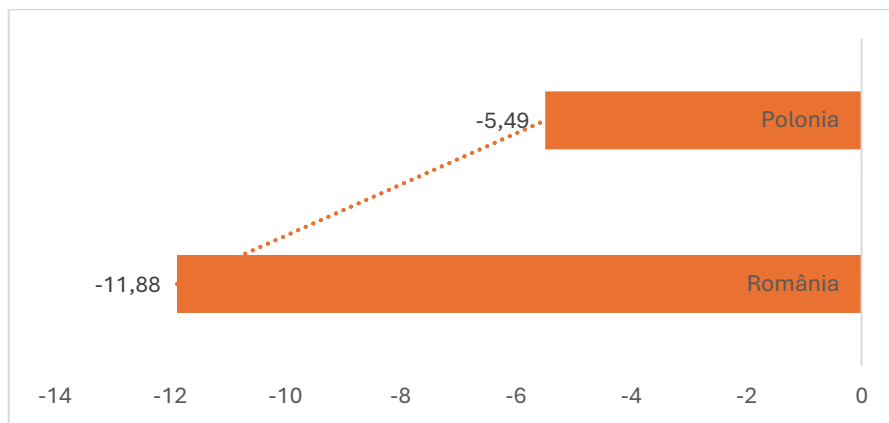


Figure 1. Distance to the advanced-EU mean ESG score
Source: author's processing based on LSEG Refinitiv ESG data (2024).

Poland appears to be at a more advanced stage of convergence toward the ESG level of advanced EU economies. Romania remains at a larger distance, and the industry-controlled model indicates that this gap is not fully explained by the industrial mix.

Effect size (Cohen's *d*, indicative) is reported in Table 5.

Table 5. Effect size relative to the advanced-EU mean (Cohen's *d*)

Comparison	Cohen's <i>d</i>	Effect
Romania vs. advanced EU	-0.62	moderate
Poland vs. advanced EU	-0.3	small

Source: author's calculations based on LSEG Refinitiv ESG data (2024).

These values support the same conclusion: Romania's gap relative to the advanced-EU benchmark is more pronounced.

The findings indicate that ESG performance differences between Romanian and Polish listed firms are visible descriptively, but are not statistically robust once sectoral structure is controlled for. This suggests that the observed variation does not reflect a country effect per se, but is largely driven by the sample's industry composition.

Benchmarking against advanced EU economies reveals an ESG gap for both countries, more pronounced for Romania. In the econometric specification with industry fixed effects, Romania remains significantly below the European benchmark, while the difference for Poland is not statistically robust, pointing to incomplete ESG convergence under a shared regulatory framework.

The pillar-level analysis does not reveal consistent structural differences between the two economies on Environment, Social, or Governance, suggesting that the aggregate ESG score reflects cumulative factors rather than a single dominant component.

The results should be interpreted in light of limitations related to sample size and the cross-sectional nature of the data, which may reduce statistical power and limit

generalizability. Extending the analysis by adding firm-level controls and using panel data are relevant directions for future research.

The pillar-level analysis uses a subsample of 22 firms from Romania, 26 from Poland, and 36 from advanced EU economies, totaling 84 observations. The smaller sample reflects limited availability of complete E, S, and G scores; only firms reporting all three pillars are included. A comparative summary of mean ESG levels and gaps relative to the advanced-EU benchmark is reported in Table 6.

Table 6. Descriptive benchmark by ESG pillars (Romania, Poland, advanced EU)

Dimension	Romania (mean)	Poland (mean)	Advanced EU (mean)	RO vs. EU (diff.)	PL vs. EU (diff.)	Statistical significance
ESG Total	53.08	57.19	62.54	-9.46	-5.35	Not significant (p > 0.05)
Environment (E)	52.42	64.63	58.19	-5.77	6.44	RO-PL: -12.21 (p > 0.10)
Social (S)	58.33	65.44	60.96	-2.63	4.48	Not significant
Governance (G)	56.50	55.94	56.12	0.38	-0.18	Not significant

Source: author's processing based on LSEG Refinitiv ESG data (2024).

At the level of the analyzed dimensions, no meaningful structural differences are observed across the three groups.

To assess whether the observed differences persist after controlling for sectoral structure, we examine the results of the OLS model described in the methodology section.

At the aggregate level, Poland records higher mean ESG scores than Romania; however, these differences are not statistically significant in bivariate tests. Once sectoral structure is controlled for in the OLS model, the Romania–Poland differences disappear, indicating that they are driven primarily by industry composition rather than by country-specific effects. By contrast, Romania remains significantly below the EU benchmark after controlling for sector fixed effects, while Poland does not exhibit a statistically robust difference.

Overall, the evidence points to a more nuanced picture than what simple mean comparisons suggest. In bivariate tests, the Romania–Poland differences are not statistically significant. Relative to advanced EU economies, both countries lie below the benchmark descriptively; however, in the econometric model with sector fixed effects, only Romania remains significantly below the EU benchmark.

The pillar-level analysis indicates that differences are not statistically robust when the Environment, Social, and Governance dimensions are examined separately. The effects, when present, are more visible in the aggregate ESG score than in any individual pillar.

This pattern may reflect the fact that the aggregate ESG score bundles several elements—institutions, reporting capability, and how deeply ESG is integrated into strategy—that are not easily isolated in pillar-by-pillar comparisons. In our sample, Romania shows a larger shortfall relative to the advanced-EU benchmark, whereas

Poland lies closer to the reference level. These results should be read with caution, given the relatively small samples and the risk that industry composition still influences the comparisons.

Overall, the evidence points to incomplete ESG convergence among the economies analyzed, and it does not support a stable structural advantage of one country over the other. Although Poland's average ESG score is higher, the Romania–Poland difference is not statistically confirmed in the tests applied.

Although Poland shows higher average ESG values, the differences relative to Romania are not statistically confirmed.

Accordingly, the data do not provide empirical support for a strong, country-level structural gap in firm-level ESG performance between Romania and Poland.

When benchmarked against advanced EU economies, both emerging markets sit below the reference mean in descriptive terms: Romania's average ESG score is about 9–12 points lower, while Poland's is roughly 5–6 points lower.

In the simple mean-difference tests, these benchmark gaps are not statistically significant. Once sectoral structure is controlled for in the regression framework, however, Romania remains significantly below the advanced-EU benchmark, whereas the estimated difference for Poland is not statistically robust. In other words, within this sample, Romania's shortfall relative to advanced economies persists even after accounting for industry mix.

This finding suggests that, in the analyzed sample, Romania displays a more pronounced ESG gap relative to advanced economies, even after controlling for industrial structure.

Breaking the ESG score into pillars yields a broadly balanced picture. On Environment, Poland has higher mean values than Romania and scores that are comparable to—or slightly above—the advanced-EU mean, but the differences are not statistically supported. On Social, both Romania and Poland cluster near the European mean, with no robust gaps. On Governance, the three groups are very close, suggesting no clear structural discrepancies.

The sector-controlled regressions likewise show no significant country effects for any single pillar. This suggests that the observed gap is not concentrated in one dimension; instead, it is more consistent with an aggregate effect linked to the overall consistency of ESG practices and the strength of reporting and governance arrangements.

Beyond its academic contribution, the study has several practical implications. First, for listed firms in Romania, the fact that the ESG gap relative to the European benchmark persists after sector controls suggests that closing it will require more than formal CSRD compliance; it calls for investments in reporting capacity, stronger internal governance, and the integration of ESG criteria into core decision-making.

5. Conclusions

Based on the available data, the following conclusions can be drawn:

ESG differences between Romania and Poland are visible descriptively but are not statistically robust.

Both Romania and Poland fall below the mean of advanced EU economies.

After controlling for industry, Romania remains significantly below the EU benchmark for the total ESG score, while Poland does not.

There are no significant structural differences on the individual E, S, or G pillars.

These results suggest that ESG performance in Central Europe exhibits a higher degree of convergence than what simple raw-mean comparisons would imply. At the same time, they point to a moderate gap for Romania relative to advanced economies that cannot be explained solely by sectoral structure.

Overall, the results imply that the Romania–Poland differences in ESG scores are mainly descriptive and should not be read as structural once industry composition is taken into account. By contrast, the benchmark exercise points to a larger shortfall for Romania that persists even with sector fixed effects. This pattern may be consistent with differences in reporting maturity, investor scrutiny, or the depth with which ESG practices are implemented at the firm level.

At the same time, the conclusions must be viewed in light of the sample constraints and the coverage of the LSEG/Refinitiv database. The limited number of observations and the way firms enter the dataset may reduce statistical power and introduce selection effects—particularly for Romania—so the estimates should be interpreted as indicative rather than definitive.

Future research directions follow naturally from these limitations and results. First, extending the sample over time (a multi-year panel) would allow testing ESG convergence and separating cyclical from structural effects. Second, adding firm-level controls (size, profitability, leverage, asset intensity, export exposure) would reduce the risk that the country coefficient captures differences in financial structure. Third, linking ESG scores to financial performance indicators (e.g., ROA, ROE, Tobin's Q) within a fixed-effects framework and robustness tests would enable an explicit assessment of the channels through which sustainability may translate into economic outcomes.

Finally, the results support the relevance of intra-EU comparative approaches for emerging economies: the same regulatory architecture does not automatically produce homogeneous outcomes. The differences observed between Romania, Poland, and advanced economies suggest that, beyond sectoral structure, institutional and organizational capacity to internalize ESG requirements into processes and governance—rather than merely to report compliance—also matters.

References:

1. Birlan, I., Davidescu, A.A., Tita, C.-E., & Nae, T.M. (2025). Modeling regional ESG performance in the European Union: A partial least squares approach to sustainable economic systems. *Mathematics*, 13, 2337. <https://doi.org/10.3390/math13152337>
2. Bogdan, F., Boboc, C., & Ghiță, S. (2021). The relationship between corporate social responsibility and financial performance in Romanian companies. *Economic Computation and Economic Cybernetics Studies and Research*, 55(3). <https://doi.org/10.24818/18423264/55.3.21.19>
3. Bunget, O.-C., Mateș, D., Dumitrescu, A.-C., Bogdan, O., & Burcă, V. (2020). The link between board structure, audit, and performance for corporate sustainability. *Sustainability*, 12(20), 8408. <https://doi.org/10.3390/su12208408>
4. Bursa de Valori București. (n.d.). <https://www.bvb.ro/>
5. Bursa de Valori Budapesta. (n.d.). <https://www.bse.hu/>
6. Dănescu, T., Spătăcean, I.-O., Popa, M.-A., & Sirbu, C.-G. (2021). The impact of corporate governance mechanism over financial performance: Evidence from Romania. *Sustainability*, 13(19), 10494. <https://doi.org/10.3390/su131910494>

7. Eurostat. (n.d.). https://ec.europa.eu/eurostat/databrowser/view/naio_10_fgti/default/table?lang=en
8. Grigorescu, P.A., Lită, A.N., Gălețeanu, F., Coman, D.M., & Radu, V. (2025). Sustainable accounting under EU sustainability regulations: Comparative evidence from Romania and European case studies on CSRD implementation. *Sustainability*, 17, 10746. <https://doi.org/10.3390/su172310746>
9. Gunardi, A., Suteja, J., & Auristi, R.-J. (2017). Does corporate social responsibility shape the relationship between corporate governance and financial performance? *Indonesian Journal of Sustainability Accounting and Management*, 1(2), 59–68. <https://doi.org/10.28992/ijSAM.v1i1.33>
10. Hamad, H. A., & Cek, K. (2023). The moderating effects of corporate social responsibility on corporate financial performance: Evidence from OECD countries. *Sustainability*, 15(11), 8901. <https://doi.org/10.3390/su15118901>
11. Iwanicz-Drozdowska, M., Lament, M., & Witkowski, B. (2025). ESG performance and economic growth in Europe. *Sustainable Development*, 33(6), 9180–9196. <https://doi.org/10.1002/sd.70141>
12. LSEG Data & Analytics. (n.d.). ESG scores. <https://www.lseg.com/en/data-analytics/sustainable-finance/esg-scores>
13. Luo, Z., Li, Y., Nguyen, L. T., Jo, I., & Zhao, J. (2024). The moderating role of country governance in the link between ESG and financial performance: A study of listed companies in 58 countries. *Sustainability*, 16(13), 5410. <https://doi.org/10.3390/su16135410>
14. Nasdaq. (n.d.). European market activity. <https://www.nasdaq.com/european-market-activity>
15. Țăran, A.-M., Noja, G.-G., Diaconu, M., Barna, F., Naser, K., & Pirtea, M.-G. (2026). Board management characteristics and financial outcomes in sustainability-oriented European companies. *Sustainability*, 18(2), 657. <https://doi.org/10.3390/su18020657>
16. World Bank Group. (n.d.). *World development indicators*. <https://databank.worldbank.org/source/world-development-indicators>