

# ESG Scores and Financial Performance: Evidence from the Casablanca Stock Exchange

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## ESG Scores and Financial Performance: Evidence from the Casablanca Stock Exchange

### Abstract

The purpose of this research paper is to examine the impact of Environmental, Social, and Governance (ESG) performance on the financial performance of 43 Moroccan companies listed on the Casablanca Stock Exchange (CSE). Regarding methodology, the study employs correlation and simple linear regression analyses on financial data extracted from the CSE and ESG scores obtained from LSEG Data & Analytics for the year 2022. The aim is to explore the effects of Environmental, Social, and Governance (ESG) factors on key financial performance variables, including Return on Equity (ROE), Return on Assets (ROA), Net Profit Margin, Debt-to-Equity Ratio, and Turnover Growth Ratio. The study results reveal a significant positive impact of ESG performance on financial performance. Specifically, Environmental performance, particularly the subfactor Resource Use, and Social performance, particularly the subfactor Workforce, along with CSR Strategy within Governance performance, positively influence Net Profit Margin. However, no correlations were observed between ESG performance and variables measuring financial performance, such as ROE, ROA, and Turnover Growth Ratio. Furthermore, ESG performance demonstrates a significant positive effect on the Debt-to-Equity ratio. Subfactors such as Emissions and Resource Use within the Environmental factor, as well as Product Responsibility within Social performance, exert a noteworthy positive impact on the Debt-to-Equity Ratio. The novelty of this research lies in employing ESG scores in Morocco to explore the relationship between sustainability practices and financial performance within the Moroccan business context, offering substantial information for both academic researchers and practitioners.

**Keywords:** ESG; score; financial performance; debt; Casablanca Stock Exchange

**JEL Classification :** G30, G32, Q01, Q56.

**Paper type:** Empirical research

## 1. Introduction

Over the last decade, as the demand for corporate sustainability increased, incorporating environmental, social, and governance (ESG) measures into the investment decision-making process has become a progressively common practice for fund managers. While developed countries have been actively researching and adopting ESG principles for the past decade, developing nations like Morocco are now expressing interest in ESG compliance. The Moroccan Capital Market Authority (AMMC) has proactively promoted ESG adherence and transparency, particularly among companies listed on the Casablanca Stock Exchange (CSE). Starting in February 2019, companies listed on the CSE are mandated to release ESG sustainability reports in addition to their conventional financial reports, signaling a commitment to holistic corporate reporting. As part of its efforts to further drive corporate ESG compliance, the AMMC has introduced the MASI.ESG Index, formerly known as the Casablanca ESG 10. This thematic index highlights the 20 most ESG-compliant companies on the CSE, determined through an annual evaluation of their sustainability initiatives (Janah and Sassi, 2022). The introduction of such an index reflects the regulatory body's dedication to incentivizing and recognizing ESG practices within the Moroccan corporate sector and the growing interest from Moroccan investors.

The consideration of non-financial criteria does not mean that investors overlook financial returns, which remain the principal objective (Halbritter and Dorfleitner, 2015). In this context, the question arises as to whether there exists a link between the financial performance of a company and its social performance. Friede et al. (2015) conducted a meta-analysis of over 2200 individual studies. Their findings suggest that approximately 90% of the studies indicate a non-negative relationship between ESG (Environment, Social, Governance) factors and financial performance. Importantly, most of these studies show a positive relationship. Several studies have used Return on Assets (ROA) and Tobin's Q as proxy variables for company value. Velte (2017) found that ESG performance has a positive impact on ROA but no impact on Tobin's Q. However, Yu and Xiao (2022), based on listed Chinese companies from 2010 to 2019, found a significant positive relationship between ESG composite performance and company value measured by Return on Assets (ROA), Market-to-Book ratio (MB), and Tobin's Q.

On the contrary, some studies have indicated a negative relationship between ESG and financial performance. Moore (2001) argues, in a study of the U.K. supermarket industry, that social and financial performance are negatively related. In another study, Elsayed and Paton (2005) suggested that environmental performance has no significant impact on Tobin's Q and return on sales (ROS), but it does have a negative impact on Return on Assets (ROA). Additionally, Duque-Grisales and Aguilera-Caracuel (2021) conducted a study on 104 multinationals from Brazil, Chile, Colombia, Mexico, and Peru, using data from the period 2011-2015. Their results indicate a significantly negative link between financial performance and ESG score.

This research paper aims to investigate the impact of ESG performance on financial performance in Morocco, a developing country. It explores the connections between each pillar (environmental, social, and governance) and the financial performance of Moroccan companies. The paper begins with an in-depth literature review, followed by an exploration of the methodology used in this study. Finally, the paper concludes with a presentation and discussion of the results.

## 2. Literature review

Several studies have attempted to analyze the impact of each factor (E, S, and G) on the financial performance of a company. Concerning environmental performance, Dowell et al. (2000)

discovered in a study using a sample of U.S. multinational companies that those adopting a single stringent global environmental standard exhibit significantly higher market values, measured by Tobin's q, compared to those opting for less strict standards. This finding aligns with Derwall et al. (2005), who observed that the high-ranked portfolio in eco-efficiency demonstrates significantly higher average returns than the low-ranked portfolio. Additionally, utilizing data from 394 large U.S. companies, Yadav et al. (2016) concluded that there is a positive relationship between a firm's environmental performance, as measured by Newsweek's 'Green Rankings,' and its stock market value. However, other research supports the hypothesis that environmental improvements have decreasing marginal net benefits because improved environmental performance leads to increased costs (Palmer et al., 1995; Walley and Whitehead, 1994).

In terms of social performance, systems of High-Performance Work Practices have an economically and statistically significant impact on firm performance (Huselid, 1995). Additionally, in research conducted through a survey of senior executives in human capital management, Molina and Ortega (2003) discovered that higher levels of employee training are linked with substantial advantages, enhancing firm value. Furthermore, many conventional managers incorporate ESG criteria into their investment processes and use ESG information for alerting and risk management (van Duuren et al., 2016).

Regarding governance performance, MacAvoy and Millstein (1999) concluded that companies with active and independent boards contribute substantially more value to their stockholders compared to companies with passive, 'rubber-stamp' boards. Additionally, Guest (2009) demonstrated a negative correlation between board size and financial performance, as measured by Tobin's Q, profitability, and share returns.

The return on investments for a company is significantly influenced by its cost of capital, which is calculated by considering both the cost of debt and the cost of equity. A company that can secure credit at a lower cost can leverage this advantage to optimize its profits. In this context, several studies have attempted to investigate the relationship between ESG performance and the cost of debt. Apergis et al. (2022) present findings indicating a negative correlation between the cost of debt for borrowing companies and their overall ESG score, as well as the individual scores for the environmental, social, and governance pillars. Additionally, companies with lower ESG scores are perceived as riskier. This observation aligns with the findings reported by Houque et al. (2020) and with the results of Arora and Sharma (2022), who found that the ESG score negatively impacts the cost of debt and that the social score has the highest significant effect. Moreover, Li et al. (2023) identified that the environmental score has the highest effect. On the other hand, Gigante and Manglaviti (2022) conducted a study on European nonfinancial companies from 2018 to 2020, using the ESG score from Refinitiv and employing a sharp regression discontinuity design. Their findings indicate that there is no statistically significant relationship between the average ESG score and the cost of debt.

Based on the information provided in the introduction and literature review, the main hypotheses formulated for the study are as follows:

**H0:** ESG performance has a significant impact on the financial performance of companies.

**H1:** ESG performance does not have a significant impact on the financial performance of companies.

Having laid a foundational understanding in the literature review, the focus now shifts to the methodology section, exploring the analytical tools and variables applied in this study to investigate the interaction between ESG considerations and financial performance measures.

### 3. Methodology

In this section, the study sample will be presented, followed by the analysis model.

### 3.1. Sample description

The study examines a sample of 43 companies listed on the Casablanca Stock Exchange. These companies were selected based on the availability of their data, particularly ESG information. The sample of companies and their respective sectors are presented in the following table.

*Table 1: Activity Sectors of Sample Companies*

| Companies  | Sectors      | Companies  | Sectors                                                                |
|------------|--------------|------------|------------------------------------------------------------------------|
| Company 1  | Insurance    | Company 23 | Telecommunications                                                     |
| Company 2  | Oil and Gas  | Company 24 | Building and Construction Materials                                    |
| Company 3  | Health       | Company 25 | Agribusiness and Production                                            |
| Company 4  | Chemicals    | Company 26 | Hardware, Software, and IT Services                                    |
| Company 5  | Insurance    | Company 27 | Real Estate Investment Trusts<br>Finance Companies and Other Financial |
| Company 6  | Distributors | Company 28 | Activities                                                             |
| Company 7  | Banks        | Company 29 | Agribusiness and Production                                            |
| Company 8  | Distributors | Company 30 | Agribusiness and Production                                            |
| Company 9  | Banks        | Company 31 | Leisure and Hotels<br>Finance Companies and Other Financial            |
| Company 10 | Banks        | Company 32 | Activities                                                             |
| Company 11 | Banks        | Company 33 | Hardware, Software, and IT Services                                    |
| Company 12 | Beverages    | Company 34 | Real Estate Investment and Promotion                                   |
| Company 13 | Mining       | Company 35 | Pharmaceutical Industry                                                |
| Company 14 | Banks        | Company 36 | Building and Construction Materials                                    |
| Company 15 | Holdings     | Company 37 | Building and Construction Materials                                    |
| Company 16 | Insurance    | Company 38 | Distributors                                                           |
| Company 17 | Beverages    | Company 39 | Electricity                                                            |
| Company 18 | Distributors | Company 40 | Building and Construction Materials                                    |
| Company 19 | Distributors | Company 41 | Hardware, Software, and IT Services                                    |
| Company 20 | Oil and Gas  | Company 42 | Agribusiness and Production                                            |
| Company 21 | Insurance    | Company 43 | Hardware, Software, and IT Services                                    |
| Company 22 | Distributors |            |                                                                        |

*Source: Authors' elaboration*

### 3.2. Research model

This study examines the impact of ESG performance on financial performance. Initially, correlations between financial performance and ESG performance variables will be investigated. Subsequently, simple linear regression will be applied to the variables that show significant correlations.

The simple linear regression equation is presented as follows:

$$Y = \beta_0 + \beta_1 X + \epsilon \quad (1)$$

Where:

- $Y$ : Dependent variable (financial performance)
- $X$ : Independent variable (ESG performance).
- $\beta_0$ : Intercept.
- $\beta_1$ : Unstandardized regression coefficient for the independent variable  $X$ .
- $\epsilon$ : Error term.

Regression testing using SPSS determines if there is an impact of the independent variable on the dependent variable. Thus,  $\beta_1$  indicates the degree of impact.

The chosen dependent variables representing financial performance in this study include Return on Equity (ROE), Return on Assets (ROA), Net Profit Margin, Debt-to-Equity Ratio, and Turnover Growth Ratio.

- The Return on Equity (ROE) measures the firm's profitability to its shareholders' equity.

$$ROE = \frac{\text{Net Income}}{\text{Shareholders' Equity}} \quad (1)$$

- Return on Assets (ROA) measures the firm's profitability to its total assets.

$$ROA = \frac{\text{Net Income}}{\text{Total Assets}} \quad (2)$$

- The Net Profit Margin measures the firm's net profit relative to its total revenue, indicating how efficiently a company converts its revenue into net profit.

$$\text{Net Profit Margin} = \frac{\text{Net Income}}{\text{Turnover}} \times 100 \quad (3)$$

- Debt-to-Equity Ratio measures the proportion of a firm's total debt relative to its total Shareholders' equity.

$$\text{Debt – to – Equity Ratio} = \frac{\text{Total Debt}}{\text{Total Shareholders' Equity}} \quad (4)$$

- Turnover Growth Ratio assesses the relative increase or decrease in turnover between two specific dates (in this study between 2021 and 2022).

$$\text{Turnover Growth Ratio} = \frac{\text{Current Turnover} - \text{Previous Turnover}}{\text{Previous Turnover}} \times 100 \quad (5)$$

The independent variables in this study are derived from non-financial ratings assigned by LSEG Data & Analytics, one of the world's largest providers of financial markets data and infrastructure. These scores are developed based on information from companies' ESG reports, covering the overall ESG score, Environment scores (Emissions, Resource Use, Innovation), Social scores (Human Rights, Product Responsibility, Workforce, Community), and Governance scores (Management, Shareholders, CSR Strategy).

After introducing the analysis tools and variables used in the study, the next section unveils the results uncovered.

## 4. Results

This section presents descriptive statistics for the ESG and financial metrics of the study. Subsequently, it explores the most significant correlations between variables representing financial performance on the one hand and variables representing ESG performance on the other. Finally, the results of regressions between these variables are also presented.

### 4.1. Descriptive statistics

The descriptive statistics of the study variables, representing financial and ESG performance, are illustrated in the following Table 1.

Based on the descriptive statistics provided in Table 1, the mean ESG score of 40.65 falls within the second quartile (refer to Table 3 of ESG score ranges in the appendix), signifying satisfactory relative ESG performance and a moderate degree of transparency in reporting material ESG data publicly. The observed range of 11 to 73 suggests that companies in the dataset vary from poor to good ESG performance.

The mean environmental score of 30.91 also falls within the second quartile, indicating satisfactory performance in environmental practices. The wide range (3 to 86) indicates variability in environmental performance, with some companies demonstrating poor practices and others showing commendable commitment. The mean emissions score of 24.14 falls within

the first quartile, suggesting that, on average, companies have a poor relative emissions performance and an insufficient degree of transparency in reporting emissions.

**Table 2: Descriptive Statistics of ESG and Financial Metrics**

|                        | N  | Minimum     | Maximum   | Mean        | Std. Deviation |
|------------------------|----|-------------|-----------|-------------|----------------|
| ESG                    | 43 | 11          | 73        | 40.65       | 14.354         |
| Environment            | 43 | 3           | 86        | 30.91       | 18.255         |
| Emissions              | 43 | 0           | 79        | 24.14       | 20.676         |
| Resource Use           | 43 | 0           | 73        | 29.86       | 19.764         |
| Innovation             | 43 | 0           | 96        | 36.28       | 28.494         |
| Social                 | 43 | 3           | 77        | 39.05       | 17.632         |
| Human Rights           | 43 | 0           | 94        | 26.81       | 28.330         |
| Product Responsibility | 43 | 0           | 99        | 49.86       | 31.713         |
| Workforce              | 43 | 3           | 93        | 43.81       | 20.449         |
| Community              | 43 | 3           | 97        | 31.47       | 24.770         |
| Governance             | 43 | 12          | 90        | 51.02       | 19.558         |
| Management             | 43 | 5           | 99        | 51.02       | 27.681         |
| Shareholders           | 43 | 1           | 99        | 53.28       | 27.901         |
| CSR Strategy           | 43 | 0           | 99        | 48.05       | 30.116         |
| ROE                    | 43 | -0.351925   | 1.204452  | 0.14902561  | 0.222463295    |
| ROA                    | 43 | -0.301631   | 0.285805  | 0.03613653  | 0.082062681    |
| Net Profit Margin      | 43 | -0.827252   | 0.539290  | 0.06358159  | 0.211747026    |
| Debt-to-Equity         | 43 | -3.77608659 | 17.007012 | 3.257289389 | 3.900061683    |
| Turnover Growth        | 43 | -0.36240720 | 0.9744114 | 0.165240256 | 0.224748234    |
| Valid N (listwise)     | 43 |             |           |             |                |

*Source: Authors' calculations, IBM SPSS Statistics 21*

The mean social score of 39.05 places it within the second quartile, signifying satisfactory social performance. The human rights score, averaging 26.81 and nearing the first quartile, suggests that, on average, companies may need to strengthen their commitment to human rights. However, the mean values of scores in workforce, community, and product responsibility provide a general sense of moderate to good performance.

Governance and management scores (mean of 51.02) and shareholders' score (mean of 53.28) fall within the third quartile, suggesting good governance and management practices.

The mean ROE of 0.149 suggests a positive return on shareholders' equity, indicating healthy financial performance on average. With a mean ROA of 0.0361, companies are efficiently generating a positive return on their assets. The average net profit margin of 0.0636, though positive, shows variations among companies (ranging from -0.827 to 0.539). Concerning the debt-to-equity ratio, companies exhibit a mix of debt and equity financing. Despite major variations between companies (ranging from -3.7760 to 17.007), the mean debt-to-equity ratio of 3.257 suggests a moderate level of financial leverage. Additionally, the mean turnover growth of 16.52% indicates that companies are experiencing moderate revenue growth.

#### **4.2. Correlation results**

The examination of correlations between dependent variables and independent variables (ESG score and its subsets) yielded noteworthy findings. At a significance level of 1%, the Net Profit Margin demonstrated positive correlations with the ESG score ( $r = 0.397889$ ), Workforce score ( $r = 0.438842$ ), and CSR Strategy score ( $r = 0.450515$ ). Additionally, the Debt-to-Equity Ratio exhibited a positive correlation with the Product Responsibility score ( $r = 0.463270$ ).

At a significance level of 5%, the Net Profit Margin maintained positive correlations with the Environment score ( $r = 0.328474$ ), Resource Use score ( $r = 0.314334$ ), and Social score ( $r = 0.336938$ ). Similarly, the Debt-to-Equity Ratio displayed positive correlations with the ESG score ( $r = 0.335683$ ), Environment score ( $r = 0.368108$ ), Emissions score ( $r = 0.354618$ ), and Resource Use score ( $r = 0.324273$ ).

Importantly, no significant correlations were observed between the dependent variables (ROE, ROA, Turnover Growth Ratio) and any independent variable (ESG and its subsets).

The results reveal a substantial association between ESG factors and certain financial metrics, suggesting a potential impact of ESG factors on financial performance. The verification of these findings will be explored in the following paragraph, which focuses on the regression analysis results.

#### 4.3. Regression Analysis Results: Impact of ESG Factors on Financial Metrics

The results of the regression analysis, summarized in Table 2, investigate the impact of environmental, social, and governance (ESG) factors on key financial metrics—Net Profit Margin and Debt-to-Equity Ratio. Table 2 presents unstandardized coefficients, t-statistics, and significance levels, providing insights into the relationships between these variables.

**Table 3: Regression of Net Profit Margin and Debt-to-Equity Ratio on Environmental, Social, and Governance (ESG) Scores**

| Dependent Variable (Y) | Independent Variable (X)     | Unstandardized Coefficients ( $\beta_1$ ) | t-statistic | Sig.  |
|------------------------|------------------------------|-------------------------------------------|-------------|-------|
| Net Profit Margin      | ESG score                    | 0.006                                     | 2.777       | 0.008 |
| Net Profit Margin      | Environment score            | 0.004                                     | 2.227       | 0.032 |
| Net Profit Margin      | Resource Use score           | 0.003                                     | 2.120       | 0.040 |
| Net Profit Margin      | Social score                 | 0.004                                     | 2.291       | 0.027 |
| Net Profit Margin      | Workforce score              | 0.005                                     | 3.127       | 0.003 |
| Net Profit Margin      | CSR Strategy score           | 0.003                                     | 3.231       | 0.002 |
| Debt-to-Equity Ratio   | ESG score                    | 0.091                                     | 2.282       | 0.028 |
| Debt-to-Equity Ratio   | Environment score            | 0.079                                     | 2.535       | 0.015 |
| Debt-to-Equity Ratio   | Emissions score              | 0.067                                     | 2.428       | 0.020 |
| Debt-to-Equity Ratio   | Resource Use score           | 0.064                                     | 2.195       | 0.034 |
| Debt-to-Equity Ratio   | Product Responsibility score | 0.057                                     | 3.347       | 0.002 |

*Source: Authors' calculations, IBM SPSS Statistics 21*

According to the simple linear regression analysis investigating the impact of Environmental, Social, and Governance (ESG) factors on key financial metrics—Net Profit Margin and Debt-to-Equity Ratio—the following results were observed.

The ESG score exhibits a positive impact on Net Profit Margin ( $\beta_1 = 0.006$ ), reaching statistical significance at the 1% threshold based on the Student's t-test (Sig=0.008). This implies that a one-unit change in the ESG score is associated with a 0.006 unit change in Net Profit Margin.

The Environmental score demonstrates a statistically significant positive effect on Net Profit Margin ( $\beta_1 = 0.004$ ) at the 5% significance level. Similarly, the Resource Use score also has a statistically significant positive impact on Net Profit Margin ( $\beta_1 = 0.003$ ) at the 5% significance level.

The Social score shows a significant positive impact on Net Profit Margin ( $\beta_1 = 0.004$ ) at the 5% significance level. Additionally, the Workforce score has a statistically significant positive effect on Net Profit Margin ( $\beta_1 = 0.005$ ) at the 1% significance level. Similarly, the CSR Strategy score demonstrates a significant positive effect on Net Profit Margin ( $\beta_1 = 0.003$ ) at the 1% significance level.

Concerning the Debt-to-Equity Ratio, The ESG score significantly influences this metric ( $\beta_1 = 0.091$ ) at the 5% significance level. The Environmental score also exhibits a statistically significant positive effect on the Debt-to-Equity Ratio ( $\beta_1 = 0.079$ ) at the 5% significance level. Moreover, the Emissions score ( $\beta_1 = 0.067$ ), Resource Use score ( $\beta_1 = 0.064$ ), and Product Responsibility score ( $\beta_1 = 0.057$ ) all show significant positive impacts on Debt-to-Equity Ratio at the 5% and 1% significance levels, respectively.

## 5. Discussion

The study's outcomes align with the meta-analysis conducted by Friede et al. (2015), suggesting that most studies demonstrate a positive relationship between ESG (Environment, Social, Governance) factors and financial performance. Furthermore, findings indicate a positive impact of the environmental factor, specifically its subfactor Resource Use, on financial performance measured by Net Profit Margin. This aligns with the results of previous studies (Palmer et al., 1995; Walley and Whitehead, 1994; Dowell et al., 2000; Derwall et al., 2005). Similarly, the social factor and its subfactor Workforce demonstrate a positive impact on financial performance, aligning with the findings of Huselid (1995). Concerning the governance factor, this study reveals that the subfactor CSR Strategy significantly affects financial performance, while the Management and Shareholders factors show no effect on financial performance.

In contrast, findings diverge from the results of (Moore, 2001; Elsayed and Paton, 2005; Duque-Grisales and Aguilera-Caracuel, 2021), who discovered a significantly negative link between financial performance and ESG scores.

Notably, ESG performance influences Debt-to-Equity. Specifically, the Environmental factor and its subfactors Emissions, Resource Use, and Product Responsibility have a positive impact on the Debt-to-Equity Ratio. This result may be attributed to the perception that companies with lower ESG scores are deemed riskier, as indicated by Apergis et al. (2022). Additionally, companies that perform well in ESG benefit from lower-cost debts compared to those with lower ESG scores, confirming the results of (Houqe et al., 2020; Arora and Sharma, 2022) who found that the ESG score negatively impacts the cost of debt and Li et al. (2023), who found that the environmental score, particularly, has the highest negative effect on the cost of debt.

## 6. Conclusion

This study investigates the impact of ESG performance on financial metrics within Moroccan companies listed on the Casablanca Stock Exchange. The findings reveal a significant positive association between ESG performance and Net Profit Margin, particularly influenced by Environmental factors such as Resource Use, as well as Social factors including Workforce and CSR Strategy under Governance. On the other hand, no significant correlations were observed between ESG performance and other financial metrics such as Return on Equity (ROE), Return on Assets (ROA), and Turnover Growth Ratio.

Furthermore, the study highlights a notable positive impact of ESG performance on the debt-to-equity ratio, indicating that companies with higher ESG scores may benefit from lower financing costs and are considered less risky by financial institutions.

In conclusion, this study confirms that ESG factors significantly influence financial performance in Moroccan companies. The results emphasize the importance of considering environmental, social, and governance criteria in corporate strategies. Future research could delve deeper into how these factors vary across different sectors, and their long-term impacts on sustainability. This will enhance the understanding of how ESG integration can benefit companies and aid investors in decision-making.

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## Appendix

**Table 4: ESG score ranges**

| Score range | Description     |                                                                                                                                                       |
|-------------|-----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|
| 0 to 25     | First Quartile  | Scores within this range indicates poor relative ESG performance and insufficient degree of transparency in reporting material ESG data publicly.     |
| > 25 to 50  | Second Quartile | Scores within this range indicates satisfactory relative ESG performance and moderate degree of transparency in reporting material ESG data publicly. |
| > 50 to 75  | Third Quartile  | Scores within this range indicates good relative ESG performance and above average degree of transparency in reporting material ESG data publicly.    |
| > 75 to 100 | Fourth Quartile | Score within this range indicates excellent relative ESG performance and high degree of transparency in reporting material ESG data publicly.         |

Source: [ESG Scores - London Stock Exchange Group](#)