

## **Development and Psychometric Properties of Environmental, Social, and Governance (ESG) Standards Perceived by Workers, Managers, and Executives**

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### **Abstract**

**Purpose:** Environmental, social, and governance (ESG) benchmarks, introduced in the early 2000s as a complement to corporate social responsibility (CSR), assess the environmental sustainability, societal impact, and ethical responsibility of organizational operations. Despite the growing importance of ESG and the development of various financial metrics, there remains a shortage of empirically validated scales to measure stakeholders' perceptions of these benchmarks. This study aims to develop and validate the ESG-Perception scale, focusing on internal stakeholders such as employees, managers, and executives.

**Method:** The study sampled employees/workers (N = 300) with a mean age of 42.44 years (SD = 13.18) and managers and executives (N = 302) with a mean age of 37.93 years (SD = 10.38). There were more female employee/worker participants (n = 163, 54.5%) than male participants (n = 136, 45.5%), while there were more male manager and executive participants (n = 163, 54.2%) than female participants (n = 138, 45.8%). The majority of employees/workers identified as White/Caucasian (61%, n = 183), similar to the majority of managers and executives, who identified as White/Caucasian (62.3%, n = 188). Exploratory factor analysis (EFA) using employee/worker data was conducted to examine the factor structure of ESG-Perception, while confirmatory factor analysis (CFA) models—including single-factor, first-order, and bi-factor models—were used with manager and executive data to validate the scale's factor structure and dimensionality. Measurement invariance across gender and race was also tested to ensure the equivalence of the factor structure. The study further assessed the scale's convergent and discriminant validity.

**Results:** The ESG-Perception scale effectively captured internal stakeholders' perceptions of ESG benchmarks. A multidimensional, three-factor structure was identified, which

aligned with the data. The factor structure was invariant across gender and race, allowing for comparisons of latent means across these groups. Convergent validity indicated that perceptions of diversity and inclusion, personality, leadership qualities, and styles influenced endorsement of ESG standards. With the exception of the Environmental and Governance constructs in the data for managers and executives, clear discriminant validity was observed for the scale's constructs, demonstrating their distinct conceptual boundaries. However, the absence of discriminant validity between the Environmental and Governance constructs indicated overlapping conceptual dimensions, which is particularly indicative of industries where governance practices and environmental performance are closely linked. The bifactor models demonstrated both multidimensionality and unidimensionality for the scale.

**Conclusions:** The ESG-Perception scale contributes to the body of knowledge on sustainability, corporate social responsibility, and ethical responsibility. It supports the application of Stakeholder and Upper Echelons theories and provides valuable insights into how internal stakeholders perceive ESG principles. Knowledge derived from its use can enhance ESG advocacy and help organizations develop effective strategies for adopting, implementing, and complying with ESG frameworks. This can promote transparency, sustainability, and improve corporate practices and outcomes. Despite exhibiting both unidimensional and multidimensional characteristics, the choice of whether to treat the scale as unidimensional or multidimensional will depend on the specific research goals and context.

**Keywords.** Environmental, Social, Governance, ESG-Perception, ESG, CSR

## 1. Introduction

Environmental, Social, and Governance (ESG) benchmarks have gained increasing attention from investors and governments in recent years (Friede et al., 2015; Liu et al., 2023; Oh et al., 2024). However, academic understanding of ESG remains limited. In response to demands for greater transparency from investors, various operational and financial metrics have been developed to integrate ESG benchmarks into business practices and reporting standards (Amel-Zadeh & Serafeim, 2018; Berg et al., 2022; Friede et al., 2015; Verheyden et al., 2016). These efforts have heightened awareness of ESG's significance among both internal stakeholders (employees, managers, executives) and external stakeholders (customers, investors, communities). Despite the availability of many ESG indicators, empirically validated instruments that capture stakeholder perceptions are scarce.

This study aims to develop and validate the ESG-Perception scale, designed to assess how workers, managers, and executives perceive ESG principles. The scale evaluates internal and external stakeholders' beliefs regarding the necessity of adopting ESG standards within organizations. By understanding stakeholder perceptions, we can assess organizational commitment to ESG strategies and explore how these factors influence ESG endorsement.

### 1.1 ESG and CSR: Definitions, Similarities, and Differences

ESG benchmarks consist of criteria that assess an organization's environmental sustainability, social responsibility, and governance practices (de Souza Barbosa et al., 2023). These benchmarks focus on environmental impact, employee well-being, human rights, and corporate governance. In

comparison, Corporate Social Responsibility (CSR) is a broader business model that holds companies accountable for their social and environmental impacts (Carroll, 1999; European Commission, 2011; Freeman & Dmytriiev, 2017; Eccles et al., 2014). While both frameworks encourage organizations to look beyond profit-making, they differ in implementation and measurement. ESG provides structured, measurable standards, often used by investors to evaluate long-term sustainability and risk management (Eccles & Klimenko, 2019). In contrast, CSR is more voluntary, lacking standardized metrics for compliance and is often driven by corporate culture rather than external pressures. Understanding the distinctions between ESG and CSR is essential for appreciating the limitations of previous studies on CSR and recognizing the need for comprehensive ESG scales to advance research.

## **1.2 Current Knowledge on ESG**

The integration of ESG principles has been shown to strengthen corporate sustainability and financial performance (de Souza Barbosa et al., 2023; Friede et al., 2015; Matos, August 2020; Orlitzky et al., 2003). However, there remains a gap in understanding how internal stakeholders—specifically workers, managers, and executives—perceive the importance and impact of ESG benchmarks. The diversity of these perceptions presents a critical challenge in fully grasping the barriers to adopting and implementing ESG standards. Existing research has largely focused on external stakeholders, such as consumers and investors, leaving a significant gap in knowledge about managerial and executive perspectives.

Recent developments in financial metrics to assess ESG performance—such as the Dow Jones Sustainability Indices, MSCI ESG Indexes, and FTSE4Good Index Series—have advanced understanding in this field. However, standardized tools to evaluate stakeholder perceptions are still lacking. Most studies have prioritized environmental and economic factors, with less attention given to social and governance aspects (de Souza Barbosa et al., 2023).

Research has explored public perceptions of ESG (Liu et al., 2023), consumer behaviors related to ESG (Hasan et al., 2024), and leadership practices tied to sustainability (Šimanskienė & Župerkienė, 2014). Other studies have examined the influence of diversity, inclusion, and leadership styles on CSR and ESG outcomes (Changar & Atan, 2021; Del Baldo, 2019; Hafsi & Turgut, 2013; Harjoto et al., 2015; Romano et al., 2020; Shapira-Lishchinsky, 2018; Wu et al., 2015; Zhu & Huang, 2023). Additionally, research has explored the effects of CEO personality on CSR and ESG performance (Agustina & Sudibyoy, 2022; Gao et al., 2023; Ernawan & Daniel, 2019; Husted & Allen, 2007; Mukherjee, 2022; Petrenko et al., 2016; Villalba-Ríos et al., 2022). However, the focus remains on corporate performance metrics, neglecting internal stakeholders' perceptions.

## **1.3 Research Gaps and Justification**

While ESG standards have well-defined criteria, research beyond financial metrics is underdeveloped. Constructs such as attitudes, perceptions, and internal dynamics require further exploration (Cheung et al., 2024). Most studies emphasize external stakeholder perspectives, leaving a significant gap in understanding the perceptions of internal stakeholders. Many scales also focus on CSR to the empirical neglect of ESG (Table 1). Although the Perceived ESG (P-ESG) scale (Oh et al., 2024) offers a way to gauge public perceptions of organizations' ESG activities, it focuses on public viewpoints rather than those of internal stakeholders. The present study seeks to fill this gap by developing a scale to assess how workers, managers, and executives perceive ESG standards and the necessity of adopting them.

Table 1: Review of ESG and CSR Scales

Theme	ESG		CSR			
	ESG-Perception Scale	Perceived ESG scale (P-ESG)	Corporate Social Responsibility (CSR) Scale:	Environmental Attitude Inventory	Stakeholder Orientation Scale	Consumers' Perceptions of Corporate Social Responsibility Scale <sup>a</sup>
Authors	Ajayi & Fakunmoju (Current article)	Oh et al. (2024)	Turker (2009)	Milfont & Duckitt, (2010).	Yau et al. (2005)	Öberseder et al. (2014)
Purpose	Measures internal stakeholders' (i.e., workers, managers, and executives) perception or endorsement of ESG principles.	Measures public perceptions of the ESG activities of an organization.	Measures perceptions of CSR, which overlaps with ESG concepts.	Measures attitudes towards environmental issues.	Measures stakeholder orientation in relation to business performance. Assesses a company's orientation towards various stakeholders.	Measures consumers' perception of corporate social responsibility.
Number of items	16	26	17-19	Variation of items: 120 items (with 10 items per scale); 72 items short form (6 items per scale)	18	42
Dimensional structure	Three: Environmental-Perception, Social-Perception, and Governance-Perception	Three: Perceived Environment, Perceived Social, and Perceived Governance	Four: Society, Employees, Customers, and Government	12 EAI scales (e.g., Preservation, Utilization, Generalized Environmental Attitudes).	Four: Customer Orientation, Competitor Orientation, Shareholder Orientation, and Employee Orientation.	Seven: Community, Employee, Shareholder, Environmental, Societal, Customer, and Supplier.
Participant/target audience	Internal stakeholders (e.g., workers, managers, executives) across the United States. Also suitable for external stakeholders (e.g., investors, customers, consumers, suppliers, communities).	General public, respondents from 60 Korean companies (internal stakeholders)	Business professionals in Turkey	Study 1: University students in Auckland, New Zealand; Study 2: Brazil; General public in Brazil; Study 3: 59 countries from six continents.	Senior administrators; Internal stakeholders in China	Customers

<sup>a</sup>A similar scale by Moisescu's (2015) measures customers' perceptions of corporate social responsibility, whereas Öberseder et al. (2014) measures consumers' perceptions of corporate social responsibility.

#### **1.4 Theoretical Framework: Stakeholder and Upper Echelons Theories**

Stakeholder theory posits that organizations should consider the interests of all stakeholders, not just shareholders, encompassing employees, customers, suppliers, communities, and the environment (Donaldson & Preston, 1995; Parmar et al., 2010). By incorporating ESG principles, organizations can create sustainable value and build trust with diverse stakeholders.

Upper echelons theory (Hambrick & Mason, 1984) asserts that leaders' characteristics influence organizational outcomes, including strategic decisions related to ESG. Leaders' cognitive traits, shaped by their values and experiences, significantly affect their commitment to ESG-oriented initiatives. This theory underscores the importance of understanding how managerial perceptions influence ESG adoption.

#### **1.5 The Present Study: Rationale and Significance**

Measuring perceptions of ESG standards among internal stakeholders offers valuable insights into organizational culture and potential barriers to ESG adoption. Understanding these perceptions can complement financial metrics, providing a comprehensive view of ESG performance. Furthermore, aligning organizational practices with stakeholder expectations fosters stronger relationships and promotes ethical business practices.

The ESG-Perception scale introduced in this study aims to address the gap in evaluating internal stakeholders' views on ESG. This tool will enhance understanding of how stakeholders influence the adoption and implementation of ESG principles, contributing to both academic research and practical applications.

This study will address the following research questions:

##### **Exploratory Factor Analysis (Worker Data)**

1. What ESG indicators contribute to the formation of the ESG-Perception scale, and how many dimensions are identified from these indicators?

Validity and Reliability:

2. How valid and reliable is the factor structure of the ESG-Perception scale?

3. To what extent is convergent validity of the scale established?

4. How robust is the discriminant validity of the scale?

##### **Confirmatory Factor Analysis (Manager and Executive Data)**

Validity and Reliability:

5. To what extent is convergent validity of the scale established?

6. How robust is the discriminant validity of the scale?

7. Can the factor structure of the ESG-Perception scale be validated?

Measurement Invariance:

8. Is the factor structure consistent across gender and race?

Unidimensionality vs. Multidimensionality:

9. Is the ESG-Perception scale unidimensional or multidimensional?

## **2. Method**

### **2.1 Item Generation and Development**

**Qualitative interview:** To better understand perceptions of Environmental, Social, and Governance (ESG), a preliminary qualitative interview was conducted with 30 respondents from organizations across multiple sectors in the US, UK, and Nigeria. The respondents included members of the board of directors and senior leadership, ensuring perspectives from both policy-makers and executives responsible for implementing ESG policies. This approach aimed to provide a well-rounded view of the organizational challenges encountered in driving and implementing ESG practices from both the directors' and internal stakeholders' points of view. From the qualitative data analysis, leadership authority emerged as instrumental in the adoption of social programs in organizations.

**Adaption of ESG metrics:** Building on insights gained from the qualitative analysis, a thorough literature review was conducted to deepen the understanding of ESG and identify existing ESG measurement tools. However, no suitable measurement tools were found. Drawing on financial metrics, indexes, and CSR measures, an adaptation of the “set of 21 core and 34 expanded metrics and disclosures” published by the World Economic Forum in September 2020 was selected as a viable framework (World Economic Forum, n.p.). At Davos 2020, prominent business bodies and accounting firms—including the World Economic Forum, the International Business Council, Deloitte, PwC, KPMG, and Ernst & Young—developed a set of ESG reporting metrics. While these metrics marked progress in recognizing ESG’s importance, they did not account for professionals’ perceptions of ESG. Table 2 outlines the conceptual definitions of the ESG framework derived from this comprehensive review and adaptation. This process resulted in the generation of 38 items, categorized as follows: Environment (8 items), Social (17 items), and Governance (13 items). Initial evaluations were conducted to assess the readability of the questions, as well as their face and content validity.

**Face validity and readability:** The 38 items were then shared with 30 human services graduate students, who were asked to determine if the questions captured the full range and characteristics of the ESG construct. They were instructed to research the ESG concept independently and assess whether the questions accurately represented the ESG subconstructs. Following this, ten business leaders and scholars with no background in the business profession (including three professors in the social service profession) participated in a readability and face validity exercise, during which they were asked to briefly research ESG and evaluate whether the items omitted any important aspects of ESG based on their findings.

**Content validity:** After the readability and face validity assessments, a content validity exercise was conducted to ensure that the items comprehensively represented the ESG construct. This included evaluating whether the items aligned with ESG concepts and covered its theoretical and practical aspects. Participants in this phase included five scholars (three business professors and two PhD students) specializing in business, with expertise in management, finance, and accounting.

**Pilot Study:** A pilot study involving 104 participants was conducted to further assess the readability and relevance of the 38 items. Participants provided feedback, which was used to refine the items. Based on this feedback and those obtained during face and content validity exercises, 29 items (previously noted as 30 items) were finalized for data collection. Table 3 outlines the themes associated with the ESG items.

Table 2: Conceptual Definition of ESG Standards

ESG principle	Definition
Environment/ planet	The environment aspect of ESG pertains to the policies, practices, and actions taken by companies to address and mitigate their impact on natural ecosystems, resources, and climate. It involves the company's efforts to minimize pollution, emissions, and resource depletion throughout the entire lifecycle of their products or services. This includes reporting on emissions and pollution levels associated with raw material extraction and processing, setting emission reduction targets in line with global standards, and disclosing strategies for addressing climate change and environmental degradation. Additionally, it encompasses the financial implications of environmental impacts, such as the cost of pollution and resource depletion to water resources.
Social	The social dimension of ESG encompasses the company's interactions and relationships with its employees, stakeholders, and broader society. It involves policies and practices related to human capital management, employee well-being, diversity, equity, and inclusion, as well as community engagement and human rights. This includes reporting on employee pay disparities, injury rates, training costs, diversity metrics, labor rights standards, workplace safety measures, and health services provided to employees. Additionally, it involves ensuring fair treatment of suppliers and partners, avoiding discrimination and exploitation, and promoting human rights and social justice within the company's operations and supply chain.
Governance	Governance within the context of ESG refers to the structures, processes, and mechanisms through which companies are directed, controlled, and held accountable for their actions. It encompasses the composition and functioning of the company's governing body, such as the board of directors and executive leadership, as well as the transparency and integrity of decision-making processes. This includes reporting on the composition and diversity of the governance body, disclosure of stakeholder engagement efforts, communication of the company's societal impact, alignment of business strategies with ESG goals, establishment of ethical standards and anti-corruption measures, and mechanisms for ethical reporting and accountability. Additionally, it involves transparency in disclosing risks and opportunities related to environmental, social, and governance issues, and the establishment of procedures for addressing ethical violations and regulatory compliance.

*Note:* The formulation of conceptual definition was derived from the review of the World Economic Forum Metrics. Only themes considered for ESG-Perception Scale are defined.

Table 3: Themes associated with ESG Benchmarks

ESG	Component/Theme
Environment	<p><i>Climate Change Mitigation:</i> Efforts to reduce greenhouse gas emissions, transition to renewable energy sources, and implement sustainable practices to mitigate climate change.</p> <p><i>Pollution Prevention:</i> Strategies to minimize air, water, and soil pollution, including waste reduction, emissions control, and pollution monitoring.</p> <p><i>Resource Conservation:</i> Initiatives aimed at conserving natural resources, such as water, energy, and raw materials, through efficiency improvements and sustainable resource management.</p> <p><i>Biodiversity Preservation:</i> Actions to protect and restore ecosystems, habitats, and biodiversity, including conservation projects and sustainable land use practices.</p> <p><i>Sustainable Supply Chain:</i> Practices to promote sustainability throughout the supply chain, including responsible sourcing, ethical procurement, and supplier engagement.</p>
Social	<p><i>Diversity and Inclusion:</i> Efforts to foster diversity, equity, and inclusion within the workforce and broader society, including initiatives to promote gender equality, racial diversity, and LGBTQ+ inclusion.</p> <p><i>Labor Rights and Fair Employment:</i> Commitments to uphold labor rights, ensure fair wages and working conditions, and prevent discrimination, exploitation, and forced labor within the workforce and supply chain.</p> <p><i>Employee Well-being:</i> Programs and policies to support the physical, mental, and emotional well-being of employees, including health and safety measures, wellness initiatives, and work-life balance support.</p> <p><i>Community Engagement:</i> Engagement with local communities to address social needs, support community development projects, and build positive relationships through philanthropy, volunteerism, and stakeholder dialogue.</p> <p><i>Human Rights Protection:</i> Measures to protect and promote human rights, including respect for indigenous rights, freedom of association, and the prevention of human rights abuses within operations and supply chains.</p>
Governance	<p><i>Board Diversity and Independence:</i> Composition of the board of directors with diverse skills, backgrounds, and experiences, as well as the presence of independent directors to ensure effective oversight and accountability.</p> <p><i>Transparency and Disclosure:</i> Disclosure of relevant information, including financial performance, governance structure, ESG policies, and material risks, to shareholders, stakeholders, and the public.</p> <p><i>Ethical Standards and Integrity:</i> Establishment of ethical codes of conduct, anti-corruption policies, and whistleblower protections to promote integrity, accountability, and compliance with legal and ethical standards.</p> <p><i>Risk Management and Compliance:</i> Processes and controls to identify, assess, and mitigate risks, including financial risks, operational risks, and ESG-related risks, and ensure compliance with laws, regulations, and industry standards.</p> <p><i>Stakeholder Engagement and Accountability:</i> Engagement with stakeholders, including shareholders, employees, customers, suppliers, and communities, to understand their interests and concerns, address their needs, and enhance accountability and transparency in decision-making processes.</p>

Note: The formulation of themes was derived from the review of the World Economic Forum Metrics. Only themes considered for ESG-Perception Scale are reported..

## 2.2 Exploratory Factor Analysis with Worker Data

To identify the factor structure of the ESG standards from the 29 items, an exploratory factor analysis (EFA) was conducted using the data of workers. The emphasis was on identifying the most robust model based on items demonstrating strong factor loadings. Specific criteria were set to remove items and factors, which included: (a) items that did not load onto the identified factors, (b) items with factor loadings below .30, (c) items loading .30 or higher on three or more factors, and (d) items with loadings of .40 or higher on more than two factors (Matsunaga, 2010).

## 2.3 Participants

The sample consisted of 300 participants with a mean age of 42.44 years ( $SD = 13.18$ ) (Table 4). In terms of gender, 54.5% of the respondents were female ( $n = 163$ ), while 45.5% were male ( $n = 136$ ). The majority of participants identified as White/Caucasian (61%,  $n = 183$ ), with 39% ( $n = 117$ ) identifying as other racial or ethnic groups. Regarding educational background, 62.7% ( $n = 188$ ) had completed less than a bachelor's degree, 28% ( $n = 84$ ) held a bachelor's degree, and 9.3% ( $n = 28$ ) had a master's degree or higher. In terms of industry representation, 95.7% ( $n = 287$ ) worked in non-financial or non-financial services industries, while 4.3% ( $n = 13$ ) worked in finance or financial services.

Table 4: Demographic Characteristics of Workers

Sample characteristics	Total <i>n</i> (%)
Age	
Mean = 42.44 years, <i>SD</i> = 13.18	
Gender <sup>a</sup>	
Female	163 (54.5%)
Male	136 (45.5%)
Race/ethnicity	
White/Caucasian	183 (61%)
Others <sup>b</sup>	117(39%)
Education background completed	
Less than bachelor	188 (62.7%)
Bachelor	84 (28%)
Master and above	28 (9.3%)
Principal Industry	
Non-financial services <sup>c</sup>	287 (95.7%)
Finance and financial services	13 (4.3%)

<sup>a</sup>One case missing response and two cases identified self as neither male nor female.

<sup>b</sup>Black/African American, Hispanic/Latino, Asian/Asian American, American Indian/Alaska Native, Native Hawaiian/other Pacific Islander, and Others

<sup>c</sup>Healthcare & Pharmaceuticals (42, 14%), Retail & Consumer Durables (37, 12.3%), Education (27, 9%), Manufacturing (27, 9%), Telecommunications, Technology, Internet & Electronics (20, 6.7%), Food & Beverages (19, 6.3%), Government (19, 6.3%), Prefer not to answer (16, 5.3%), Transportation & Delivery (12, 4%), Insurance (10, 3.3%), Business Support & Logistics (9, 3%), Construction, machinery, and Homes (8, 2.7%), Advertising & Marketing (7, 2.3%), Entertainment & leisure (6, 2%), Health & Fitness (6, 2%), Agriculture (6, 2%), Automotive (4, 1.3%), Utilities, Energy, and Extraction (4, 1.3%), Nonprofit (3, 1%), Real Estate (3, 1%), and Airlines & Aerospace (including Defense) (2, 0.7%).

## 2.4 Procedure

The study received approval from the Institutional Review Board of Case Western Reserve University, Ohio, USA. Data collection was conducted online through OvationMR WorldInsight, a global market research company that offers insights and services to businesses and academic institutions. OvationMR provides access to a global platform of over 40 million panel members, spanning continents and industries. For this study, specific access to workers, managers, and executives from various organizations and industries in the United States was requested. OvationMR received the survey questionnaires, prepared the survey link, and distributed it to the targeted participants in their database.

## 2.5 Measure

The survey incorporated items related to ESG-Perception, along with additional measures designed to assess convergent validity.

**ESG-Perception Scale:** The Perception of ESG was assessed using a 29-item scale that captured three key dimensions: environment (6 items, previously 7 items – one duplicated item removed), social (13 items), and governance (10 items). The introductory question for this scale was, "To what extent do you agree or disagree with the following statements about ESG (i.e., environmental, social, and governance) principles/benchmarks? Companies should be mandated or required to..." Response options ranged from 1 (strongly disagree) to 5 (strongly agree). Examples of the specific items used can be found in Appendix A. The internal consistency reliability (Cronbach's alpha) for each converged dimension in the current study was as follows: environment (.90), social (.83), and governance (.87). For further analysis, the mean scores of each dimension were calculated and used in descriptive and correlational analysis.

The following measures were included in the survey to examine convergent validity for ESG-Perception.

**Perception of Diversity and Inclusion:** Perception of diversity and inclusion was operationalized using Gartner's Inclusion Index (Romansky et al., 2021, May). The index captures employee's perceptions of different domains in an organization, namely, fair treatment, integrating differences, decision making, psychological safety, trust, belonging, and diversity (Romansky et al., 2021, May). To respond to the question, participants were asked a preliminary question as follows: To what extent do you agree or disagree with the following statements? Examples of questions include: employees at my organization who help the organization achieve its strategic objectives are rewarded and recognized fairly; employees at my organization respect and value each other's opinions. The response choices range from 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, and 5 = strongly agree. The Cronbach's alpha is .86 (Cronbach, 1951, 1984). The mean of the 7 items was computed for analysis.

**Ethical Leadership:** To measure ethical leadership, the study utilized the Ethical Leadership Questionnaire (ELQ) developed by Langlois et al. (2014). This instrument includes 23 items that assess three dimensions of ethical reasoning—care, critique, and justice—essential for navigating moral dilemmas. The scale captures the extent to which ethical leadership is evident in resolving these dilemmas. Sample items from the questionnaire include statements like, "I speak out against unfair practices," "I adhere to established procedures and rules," and "I strive to maintain bonds and harmony within the organization." Respondents rated these items on a scale ranging from 1 (never) to 6 (always), with an additional option of N/A (not applicable). In the original study by

Langlois et al., the ELQ demonstrated a Cronbach's alpha of .80, while the current study reported an alpha of approximately .90, indicating high internal consistency (Cronbach, 1951, 1984). The mean of the 23 items was computed for analysis.

## **2.6 Data Analysis**

Exploratory factor analysis (EFA) was conducted using the principal axis factoring method with varimax rotation, consistent with the guidelines of Tabachnick and Fidell (2007). Principal axis factoring was used to extract factors from the data due to its suitability for identifying the underlying dimensions, its ability to accurately represent the underlying structure, and its computational simplicity and efficiency for exploratory purposes. Similarly, varimax rotation, an orthogonal rotation method, was employed to achieve a simpler and more interpretable factor structure. Socio-demographic variables (e.g., gender, race/ethnicity, educational background, professional position, and principal industry) were recoded and categorized for descriptive analysis. These descriptive statistics were used to examine the participants' demographic characteristics. The sample size, following the 10:1 rule (10 respondents per scale item), meets and exceeds the requirements for exploratory factor analysis for the 29 items (Boateng et al., 2018; Comrey & Lee, 1992; Kyriazos, 2018).

To evaluate convergent validity, correlations were analyzed. Discriminant validity, which demonstrates the theoretical and empirical distinctness of ESG, was assessed using the Heterotrait-Monotrait Ratio (HTMT) method. HTMT evaluates the ratio between two types of correlations: heterotrait correlations (correlations between items measuring different constructs) and monotrait correlations (correlations between items measuring the same construct) (Henseler et al., 2015). This method effectively compares the average correlations across constructs to those within constructs (Henseler et al., 2015 – Updated computation that addressed Henseler et al.'s disattenuated correlation as highlighted by Cheung et al., 2024 and Rönkkö & Cho, 2022 was utilized). By doing so, HTMT provides a robust measure of the degree to which constructs differ from one another, thus establishing discriminant validity. The threshold of acceptance of less than .80 or less than .90 will be considered.

To account for any potential issues arising from using a single data collection method in the study, and to mitigate any artificial correlations between constructs due to common method bias, Harman's single factor test of common method bias will be adopted (Harman, 1967; Podsakoff et al., 2003). Data analysis was performed using SPSS 28™ (IBM Corporation, 2021).

## **3. Results**

### **3.1 Preliminary Analyses**

The preliminary analyses revealed five factors from the 29 items examined. The environmental items demonstrated clear independent loading, while the social and governance items were grouped into two factors each. Consequently, decisions were made to retain one factor for social and another for governance. As shown in Table 5, 13 items were removed based on the following criteria: items that did not load on their designated factors but had loadings of .40 or above on other factors (specifically, social items a, b, c, and d, which loaded on the governance factor); and items that converged onto a separate factor—namely, social items e, f, g, and h, which pertained to fairness and equity in treatment, and governance items i, j, k, l, and m, which focused primarily

Table 5: Thirteen Social and Governance Items Removed from the 29 Items of ESG Benchmarks.

Items that did not load on their intended factor but instead loaded on another factor at .40 or above. Social benchmark items that loaded on the governance benchmark.	Items that converged on a separate additional factor	
<b>a:</b> disclose to the public their standards of labor rights of employees.	Social benchmark items: These items focus on fairness and equity in treatment of people and suppliers.	Governance benchmark items: These items focus primarily on public disclosures – disclosure of information to the public.
<b>b:</b> report how they protect the overall safety and well-being of their employees.	<b>e:</b> avoid any form of discrimination by age, gender, religion, or race/ethnicity.	<b>i:</b> develop and share reports on how their purpose, products, and services are beneficial to the society.
<b>b:</b> report how they protect the overall safety and well-being of their employees.	<b>f:</b> ensure that they do not engage in activities that will exploit, abuse, take advantage of people or go against the fundamental human rights of people.	<b>j:</b> ensure that the governance body (i.e., executives and top decision makers) that is responsible for setting, guiding, and executing a company’s goals and objectives are made up of professionals from diverse backgrounds (e.g., tenure of membership, gender, race/ethnicity).
<b>c:</b> report the standards of health and mental health services provided to their employees.	<b>g:</b> treat their suppliers and partners fairly and equally.	<b>k:</b> disclose to the public how their operations and activities affect stakeholders (e.g., managers, executives, sponsors, employees, investors, suppliers, government, communities, customers/users).
<b>d:</b> regularly train their workforce on human rights issues.	<b>h:</b> ensure fairness and equality in how they compensate (e.g., wages/salary, benefits) their employees.	<b>l:</b> communicate to the public different ways its business operations/activities and outcomes will affect the stakeholders.
		<b>m:</b> ensure that the public is able to determine from their purpose and core business how their strategies, policies, and goals align with how to address environmental, social, and governance issues.

*Note:* The social and governance items included in the ESG-Perception scale encompass a wide range of benchmarks relevant to social and governance aspects, which are particularly important to managers and executives. The decision was made to retain items that address these broader dimensions, rather than focusing on specific social or governance issues. Future studies may examine these factors independently.

on public disclosures. After applying these elimination criteria and conducting a reanalysis, three expected factors—Environment, Social, and Governance—emerged, each satisfying the requirement of having eigenvalues greater than 1.

### **3.2 Identified Three-Factor Model**

The exploratory factor analysis indicated that Bartlett's test of sphericity was significant,  $\chi^2(120) = 2628.47$ ,  $p < .001$ , suggesting that the correlation matrix was not an identity matrix. The Kaiser-Meyer-Olkin measure of sampling adequacy was .911, surpassing the recommended threshold of .6, indicating that the sample size was adequate for the analysis. Based on the eigenvalues, three factors were identified that explained the variance in the data: Environment (Factor 1) comprised 6 items ( $\lambda = 6.367$ , 39.791%); Governance (Factor 2) consisted of 5 items ( $\lambda = 1.977$ , 12.355%); and Social (Factor 3) included 5 items ( $\lambda = .888$ , 5.550%). Together, these factors accounted for 57.696% of the total variance. The items and their corresponding factor loadings for the ESG-Perception scale, organized by the ESG criteria rather than by the eigenvalues, are detailed in Table 6 (Research question 1).

### **3.3 Correlations Among Latent Constructs and Internal Consistency Estimates**

The conceptual relationships among the constructs within the ESG-Perception scale exhibited correlations ranging from low to moderate (Cohen, 1992). Specifically, the Environmental factor showed a significant positive correlation with the Social factor ( $r = .29$ ,  $p < .01$ ) and the Governance factor ( $r = .63$ ,  $p < .01$ ) (see Table 7). Additionally, the Social factor had a significant positive correlation with Governance ( $r = .43$ ,  $p < .01$ ). These moderate correlations, along with the absence of multicollinearity among the constructs, suggest meaningful relationships among the variables included in the ESG-Perception scale.

Moreover, the reliability or internal consistency of the items was evaluated using Cronbach's alpha ( $\alpha$ ). The overall internal consistency of the ESG-Perception scale was found to be high ( $\alpha = .90$ ). The subscales also demonstrated strong internal consistency, with alpha values of .90 for the Environmental factor, .83 for the Social factor, and .87 for the Governance factor (Research question 2).

### **3.4 Convergent and Discriminant Validity**

Convergent validity was established for the ESG-Perception scale. Although the significant correlation was low for diversity and inclusion (.22), the correlations between diversity and inclusion and the environment (.17), and between diversity and inclusion and governance (.25) (Table 7) suggest that the more strongly workers perceive organizations as inclusive, the more likely they are to endorse the implementation of ESG principles (Research question 3). Similarly, ethical leadership significantly correlated with the ESG-Perception scale (.29), though the correlation was low: ethical leadership and the environment (.18), ethical leadership and social (.24), and ethical leadership and governance (.31). Ethical care and governance (.33) had the highest significant correlation, while ethical care and social (.13) had the lowest. The significant correlations between ethical critique and social (.32), as well as ethical critique and governance (.30), are equally noteworthy. Altogether, this suggests that the more strongly employees/workers perceive leadership as ethical, the more likely they are to support the adoption and implementation of ESG standards.

Table 6: Items and Factor Loadings of ESG-Perception scale among Workers

Item	Item wording and subconstructs	Mean (SD)*	Factor loading		
			1	2	3
<b>ENVIRONMENT</b>					
1	Set their emissions targets to comply with the global standards of emissions and pollution (i.e., comply with the goals of emission control, global warming, and climate change).	3.94 (.99)	.762		
2	Report the risks and level of emissions that are common with the extraction of raw materials needed to create a product (upstream stage of production).	3.95 (.98)	.751		
3	Report the strategies and targets put in place to reduce emissions, air pollution, or global temperatures in ways that will enable the public to understand how they address climate change and global warming.	3.84 (1.04)	.741		
4	Report in monetary terms how their operations affect water resources and pollute the environment.	3.88 (1.02)	.708		
5	Report the risks and level of emissions that are common with the processing of raw materials into a finished product (downstream stage of production).	3.92 (.98)	.708		
6	Pay fines and penalties for failing to meet the global standards of emissions and pollution.	3.85 (1.16)	.702		
<b>SOCIAL<sup>a</sup></b>					
7	Report how much it costs to train employees and present the figures by gender and employees' positions.	3.10 (1.14)		.739	
8	Disclose to the public any inequalities in the structures of their organizations.	3.28 (1.16)		.701	
9	Disclose to the public any gap in pay/salary of their employees.	3.16 (1.18)		.694	
10	Disclose to the public the gender, ethnic, and/or cultural composition of their employees.	2.80 (1.22)		.681	
11	Report the rate by which employees take off from duty as a result of being injured at work.	3.29 (1.13)		.600	
<b>GOVERNANCE<sup>b</sup></b>					
12	Develop a clear anti-corruption policies and procedures that describe how they protect their operations and those affected by them.	4.02 (.91)			.781
13	Establish clear and unbiased procedures that will make it easy for regulators to assess and process ethical violations.	3.96 (.98)			.669
14	Establish clear and unbiased procedures that will make it easy for people to disclose or report unethical behaviors and breaking of laws and regulations.	4.05 (.88)			.657
15	Include in their report incidents and prevalence of discrimination and harassment in their workplace.	3.91 (.94)			.648
16	Freely disclose and explain the effects of specific risks and/or opportunities on their ability to improve their environmental, social, and governance practices.	3.80 (1.0)			.592

*Note:* The elimination of repeated item (item 3 above) and reduction from 17 to 16 items precipitated the renumbering of items. Factor loadings organized by the criteria of ESG, not as identified by the eigenvalues.

\*SD=Standard deviation

<sup>a</sup>Item 9 crossloaded with “governance” at .311.

<sup>b</sup>Item 13 to item 16 crossloaded with “environment” at .312 to .370.

Table 7: Means and Correlations of ESG-Perception Scale among Workers

Variable	Number of items	Mean (SD)	Cronbach's alpha	1	2	3	4	5	6	7	8	9
1 ESG-Perception	16	3.67 (.66)	.90	1								
2 Environment	6	3.89 (.84)	.90	.83**	1							
3 Social	5	3.13 (.90)	.83	.71**	.29**	1						
4 Governance	5	3.95 (.77)	.87	.84**	.63**	.43**	1					
5 Diversity and inclusion	7	3.62 (.73)	.86	.22**	.17**	.11	.25**	1				
6 Ethical leadership	23	4.03 (-.89)	.90	.29**	.18**	.24**	.31**	.26**	1			
7 Ethical care	10	4.52 (.89)	.82	.27**	.21**	.13*	.33**	.32**	.86**	1		
8 Ethical critique	7	3.81 (1.13)	.78	.33**	.17**	.32**	.30**	.15*	.87**	.61**	1	
9 Ethical justice	6	3.46 (1.22)	.80	.15**	.06	.18**	.13*	.18**	.83**	.54**	.62**	1

\*\*p < 0.01

\*p < 0.05

Results of the evaluation of discriminant validity using the HTMT approach indicate that the ESG-Perception scale demonstrates discriminant validity among the constructs, as all the HTMT ratios are below 0.85 (Cheung et al., 2024; Henseler et al., 2015; Rönkkö & Cho, 2022):  $r_{\text{environment-social (E-S)}} = .33$ ,  $r_{\text{social-governance (S-G)}} = .50$ , and  $r_{\text{environment-governance (E-G)}} = .71$  (Research question 4). Altogether, this suggests the conceptual distinctiveness of the ESG-Perception scale.

### **3.5 Controlling for Common Method Bias: Harman Approach**

The results of Harman's single factor test indicate that common method bias is not a significant issue in this dataset, as the single factor extracted accounts for only 42.32% of the variance, which is below the commonly accepted threshold of 50%.

## **4. Discussion**

Exploratory factor analysis of the data from workers uncovered the underlying constructs of the ESG-Perception scale, highlighting its three-factor structure. These dimensions included Environmental, Social, and Governance factors. The identified structure and pattern suggest a degree of conceptual relevance for the ESG-Perception scale in empirical studies, providing an additional tool to complement financial metrics and indexes for evaluating ESG compliance and performance. Overall, this three-factor model effectively encapsulates the three dominant conceptions of ESG in organizational and business operations.

Additionally, the results regarding convergent validity revealed that the ESG-Perception scale correlates positively with measures (i.e., diversity and inclusion and leadership) deemed related to ESG objectives and themes. By demonstrating significant positive associations with ethical leadership, the convergent validity supports findings from previous studies regarding the influence of ethical leadership on CSR practices and ESG outcomes (Del Baldo, 2019; Tziner & Persoff, 2024; Wu et al., 2015). Undoubtedly, ethical leadership influences CSR practices, drives corporate social responsibility, and affects ESG outcomes. Similarly, the significant positive association with perceptions of diversity and inclusion supports findings from previous studies regarding the relationships between organizational diversity, ESG performance, and social performance outcomes (Hafsi & Turgut, 2013; Harjoto et al., 2015; Romano et al., 2020). Organizational diversity, particularly board diversity, has significant effects on social performance as well as CSR and ESG outcomes.

Results regarding discriminant validity also suggest that ESG constructs are distinct and require thoughtful methods and approaches for integration into organizational operations and outcomes. Overall, these findings affirm the ESG-Perception scale's relevance in capturing the practical and theoretical constructs related to ESG adoption, implementation, performance, and outcomes. Nevertheless, validating the identified three-factor structure will lend credence to these conclusions.

## **5. Confirmatory Factor Analysis with Manager and Executive Data**

After conducting the exploratory factor analysis (EFA) with data from workers, confirmatory factor analysis (CFA) was performed using data from managers and executives to test whether the identified three-factor structure of the ESG variables could be replicated under more stringent conditions. This process helps validate the measurement model by examining how well the observed data align with the expected relationships between latent ESG variables and their corresponding indicators. The use of data from managers and executives is key to confirming the three-factor structure through fit indices such as chi-square, RMSEA, and CFI.

CFA, along with tests for measurement invariance, helps establish the scale's validity and reliability across different populations (Brown, 2015; Vandenberg & Lance, 2000). This is particularly important for scales that may be influenced by variations in various factors (e.g., personal, cultural, societal factors), which can affect how behaviors are perceived and interpreted (Follingstad & Rogers, 2013). Conducting CFA ensures that the ESG-Perception scale accurately reflects the intended construct, demonstrating its efficiency and psychometric robustness as a tool for measuring perceptions of ESG standards. Additionally, testing for measurement invariance across gender and race enables meaningful comparisons, ensuring that latent means can be compared across these demographic groups.

## **6. Method**

### **6.1 Participants**

The study sample consisted of 301 managers and executives with a mean age of 37.93 years ( $SD = 10.38$ ) (Table 8). In terms of gender distribution, 45.8% of the respondents were female ( $n = 138$ ), while 54.2% were male ( $n = 163$ ). The majority of participants identified as White/Caucasian (62.3%,  $n = 188$ ), with 37.7% ( $n = 114$ ) representing other racial or ethnic groups. Regarding educational attainment, 40.1% ( $n = 121$ ) of respondents had completed less than a bachelor's degree, while 39.4% ( $n = 119$ ) held a bachelor's degree, and 20.5% ( $n = 62$ ) had a master's degree or higher. Participants were nearly evenly split between executives (49%,  $n = 148$ ) and managers (51%,  $n = 154$ ). Most respondents (90.4%,  $n = 273$ ) worked in non-financial or non-financial services industries, while 9.6% ( $n = 29$ ) were employed in the finance and financial services sector.

### **6.2 Procedure**

As previously stated, approval for the study was obtained from the Institutional Review Board of Case Western Reserve University, Ohio, USA. The survey was conducted online using the service of OvationMr, a market research organization working with academics and companies. The organization used their database to share the survey's link with the participants.

### **6.3 Measure**

Participants completed a range of measures including perceptions of ESG benchmarks, leadership styles (i.e., transformational and transactional leadership), ethical leadership, and authentic leadership. The survey also included questions about the demographic characteristics of participants.

**ESG-Perception Scale:** The Perception of ESG scale comprise 16 items three-factor structure (i.e., environment, social, and governance) that emerged from the Exploratory Factor Analysis (EFA) of the data of workers reported in Table 6. Each dimension (environment = 6 items, social = 5 items, & governance = 5 items) were summed for descriptive and correlational analysis. The internal consistency estimate (i.e., Cronbach's alpha) of the ESG-Perception in the present analysis is .90: environment (.85), social (.78), and (.81) (Cronbach, 1951, 1984). The mean of each dimension of the scale was computed for analysis.

Table 8: Demographic Characteristics of Managers and Executives

Sample characteristics	Total <i>n</i> (%)
Age	
Mean = 37.93 years, <i>SD</i> = 10.38	
Gender <sup>a</sup>	
Female	138 (45.8)
Male	163 (54.2)
Race/ethnicity	
White/Caucasian	188 (62.3)
Others <sup>b</sup>	114 (37.7)
Education background completed	
Less than bachelor	121 (40.1)
Bachelor	119 (39.4)
Master and above	62 (20.5)
Professional position	
Executive	148 (49)
Manager	154 (51)
Principal Industry <sup>c</sup>	
Non-financial services <sup>c</sup>	273 (90.4)
Finance and financial services	29 (9.6)

<sup>a</sup>One case missing response.

<sup>b</sup>Black/African American, Hispanic/Latino, Asian/Asian American, American Indian/Alaska Native, Native Hawaiian/other Pacific Islander, and Others

<sup>c</sup>Healthcare & Pharmaceuticals (27, 8.9%), Retail & Consumer Durables (17, 5.6%), Education (23, 7.6%), Manufacturing (20, 6.6%), Telecommunications, Technology, Internet & Electronics (49, 16.2%), Food & Beverages (12, 4%), Government (6, 2%), Prefer not to answer (10, 3.3%), Transportation & Delivery (4, 1.3%), Insurance (5, 1.7%), Business Support & Logistics (21, 7%), Construction, machinery, and Homes (36, 11.9%), Advertising & Marketing (5, 1.7%), Entertainment & leisure (6, 2%), Health & Fitness (3, 1%), Agriculture (3, 1%), Automotive (8, 2.6%), Utilities, Energy, and Extraction (6, 2%), Nonprofit (4, 1.3%), Real Estate (7, 2.3%), and Airlines & Aerospace (including Defense) (1, 0.3%).

**Personality:** Personality was operationalized using the 10-item brief measure of the Big-Five personality domains (Gosling et al., 2003). Participants were asked to rate the personality traits (i.e., extraversion, agreeableness, conscientiousness, emotional stability, and openness) that apply to them by responding to the extent that they agree or disagree with the statements. To what extent do you agree or disagree with the following statements? The response choices to the pairs of adjectives they were asked to rate themselves are as follows: disagree strongly = disagree moderately = 2, disagree a little = 3, neither agree nor disagree = 4, agree a little = 5, agree moderately = 6, and agree strongly = 7. Examples of items include extraverted (e.g., friendly, cheerful, outgoing, sociable), enthusiastic; conventional, uncreative. Items 2, 4, 6, 8, and 10 were reverse coded/scored before computing the mean value for analysis. The Cronbach's alpha in the current study is .63 (Cronbach, 1951, 1984).

**Perception of Diversity and Inclusion:** Perception of diversity and inclusion was operationalized using Gartner's Inclusion Index (Romansky et al., 2021, May) as previously reported. The Cronbach's alpha among managers and executives is .83 (Cronbach, 1951, 1984). The mean of the 7 items was computed for analysis.

**Ethical Leadership:** Ethical leadership was measured using the Ethical Leadership Questionnaire (ELQ) (Langlois et al., 2014) as previously stated. The Cronbach's alpha in the current study was .90, indicating high internal consistency (Cronbach, 1951, 1984). The mean of the 23 items was computed for analysis.

**Transformational and Transactional Leadership:** The leadership styles were assessed using the Transformational and Transactional Leadership Scale developed by Jensen et al. (2019). This scale includes 19 items that measure four dimensions: transformational leadership and three components of transactional leadership (pecuniary rewards, non-pecuniary rewards, and contingent sanctions). Transformational leadership reflects a leader's ability to inspire employees to transcend their own self-interests for the sake of the organization, while transactional leadership captures the leader's approach to motivating employees through rewards and sanctions based on performance. Sample items for transformational leadership include statements like "As a leader, I make a continuous effort to generate enthusiasm for the organization's vision" and "As a leader, I strive to clarify for employees how they can contribute to achieving the organization's goals." For transactional leadership, sample items include "As a leader, I reward employees' performance when they meet my requirements," "As a leader, I give individual employees positive feedback when they perform well," and "As a leader, I impose negative consequences if employees perform worse than their colleagues." Responses are rated on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). The original study by Jensen et al. reported high internal consistency, with Cronbach's alpha values of .895 for transformational leadership and ranging from .874 to .937 for the various dimensions of transactional leadership. In the current study, the Cronbach's alpha for transformational leadership was .84 and transactional leadership was .79 (Cronbach, 1951, 1984). The mean of the 7 items for transformational and 12 items for transactional leadership was computed for analysis.

**Authentic Leadership:** The Authentic Leadership Questionnaire (ALQ) developed by Walumbwa et al. (2008) was employed to assess authentic leadership. This instrument consists of 16 items that measure four key dimensions of authentic leadership: self-awareness, relational transparency, internalized moral perspective, and balanced processing. These dimensions reflect leadership behaviors that enhance positive psychological capacities and foster a constructive ethical environment. Sample items from the ALQ include statements like "My actions reflect my core values," "I listen attentively to those who disagree with me," and "My moral principles guide my leadership decisions." Respondents rate these items on a 5-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree). In the original study by Walumbwa et al., internal consistency, as measured by Cronbach's alpha, ranged from .76 to .92. In the current study, the Cronbach's alpha was found to be .85, indicating good reliability (Cronbach, 1951, 1984). The mean of the 16 items was computed for analysis.

## **6.4 Data Analysis**

The analysis of data was performed using two software tools: SPSS 28™ (IBM Corporation, 2021) and Stata 17 (StataCorp, 2021). The sample size of 302 exceeded the minimum requirements necessary for the statistical analysis (Boateng et al., 2018; Kyriazos, 2018). To explore the

distribution of the variables under investigation and demographic characteristics of participants, descriptive statistics were applied. Exploratory Factor Analysis (EFA) also was employed to assess the loadings of the latent constructs. To test the convergent validity of the ESG-Perception, correlations with related variables (i.e., diversity and inclusion and leadership styles and qualities) were examined. Discriminant validity was assessed using the Heterotrait-Monotrait Ratio (HTMT) method. Similarly, confidence intervals around factor correlations were used to determine whether ESG constructs are distinct from one another (Rönkkö & Cho, 2022). Discriminant validity is established when the upper bound of the confidence interval for the correlation among the three constructs (ESG) is strictly less than 1, and not established when the confidence interval includes or exceeds 1 (Rönkkö & Cho, 2022). Discriminant validity was calculated using the CFA CI estimates and standard errors.

Stata 17 was used to perform Confirmatory Factor Analysis (CFA) to validate the factorial structure of the constructs and test for measurement invariance. The maximum likelihood estimation method was employed in this analysis. Comparative Fit Index (CFI) and Tucker-Lewis Index (TLI) were used as relative fit indices, while Root Mean Square Error of Approximation (RMSEA) served as the absolute fit index to assess population error and compare non-nested models. Fit guidelines recommended for model evaluation include an  $RMSEA \leq .05$ , indicating a "close fit"; RMSEA between .05 and .08, signifying "reasonable approximation";  $CFI > .90$ , representing a "reasonably good fit"; and  $TLI > .90$ , indicating "favorable fit" (Hu & Bentler, 1998, 1999; Kline, 2005, 2023; MacCallum et al., 1996; Schumacker & Lomax, 2004; Steiger, 2007; Tucker & Lewis, 1973).

Several multigroup models of measurement invariance were tested to evaluate whether the factor structure was equivalent across gender (male and female) and race (White/Caucasian and others – Black/African American, Hispanic/Latino etc.) (van de Schoot et al., 2012). For both gender and race, Model 1, referred to as configural or pattern invariance, was tested without applying any equality constraints. Criteria for acceptance of configural or pattern invariance were based on recommendations for acceptable model fit. In Model 2, known as metric or weak factorial invariance, equality constraints were applied to the measurement coefficients (i.e., factor loadings). Model 3, also called strong or scalar invariance, added constraints to both factor loadings and intercepts. Model 4, strict/residual invariance, examines the equality of factor loadings and intercepts across groups, as well as the equality of residuals (error variances) of the observed variables. That is, the equality of measurement error in each observed variable across the examined variables (i.e., gender and race).

To assess whether the null hypothesis of measurement invariance for metric/weak invariance, strong/scalar invariance, and strict/residual invariance should be accepted or rejected, the confidence interval of the root mean square error of approximation (RMSEA), the change in RMSEA ( $\Delta RMSEA$ ), and the change in comparative fit index ( $\Delta CFI$ ) were evaluated. Specifically, according to Cheung and Rensvold (2002), a  $\Delta CFI$  value smaller than or equal to -0.01 suggests that the null hypothesis of invariance should not be rejected. Additionally,  $\Delta RMSEA \leq 0.015$  was considered based on recommendations from Chen (2007; see also Rutkowski & Svetina; 2014; Timmons, 2010).  $\Delta CFI$  values of less than 0.002 (Meade et al., 2008) were also taken into account in making decisions about measurement invariance. When full measurement invariance was not achieved for gender and race in consideration of both changes in CFI and RMSEA, partial scalar invariance was examined was explored to determine any improvement, by comparing changes in the comparative fit index (CFI) and root mean square error of approximation (RMSEA) with values from the metric/weak invariance model (Gregorich, 2006; Widaman et al., 2010).

A single-factor confirmatory factor analysis (CFA) model was employed to assess how well the observed variables represent a single underlying construct or dimension. This analysis aimed to verify the unidimensionality of the 16-item observed variables of the ESG-Perception scale and confirm whether they measure the same latent trait or concept. Additionally, a bifactor model was examined to determine if the total construct (ESG-Perception) is adequately represented and if the constructs are not merely redundant measures of the overall construct. The bifactor model enables researchers to explore how items reflect both a general target trait and specific subtraits (Reise et al., 2010). This model evaluates the validity of subscales and assesses the degree to which scores reflect a single variable, even when multidimensionality is present (Reise et al., 2010). The bifactor model allows for understanding the unique contributions of each factor to the measurement model and interpreting the scores for general and specific factors to gain deeper insights into the scale (Rodriguez et al., 2016a, b). In this model, each item is associated with a general factor that captures shared characteristics and individual variations on the primary dimension of interest (Reise et al., 2010). It provides the advantage of focusing on a common latent attribute while accounting for additional shared factors (Reise et al., 2010).

After assessing the model fits for the bifactor model of the ESG-Perception scale, similar to the first-order multidimensional CFA model, Dueber's (2017) bifactor indices calculator was used to compute reliability indices as outlined by Rodriguez et al. (2016a, 2016b). Model fit indices were evaluated to determine unidimensionality versus multidimensionality in the ESG-Perception scale, including Explained Common Variance (ECV), Coefficient Omega ( $\omega$ ), Omega hierarchical ( $\omega_H$ ), Percent Uncontaminated Correlations (PUC), and Construct Reliability (H) (McDonald, 1999; Reise et al., 2010; Reise et al., 2012; Reise et al., 2013; Rodriguez et al., 2016a). Additional coefficients, such as OmegaS ( $\omega_S$ ), OmegaHS ( $\omega_{HS}$ ), and Relative Omega ( $\omega_R$ ), were used to measure the reliable variance attributable to the general and specific factors in the bifactor model (Dueber, 2017). Furthermore, Harman's Single-Factor Test (Harman, 1969) was conducted using SPSS to examine common method bias.

## **7. Results**

### **7.1 Preliminary Exploratory Factor Analysis**

A preliminary exploratory factor analysis (EFA), using principal axis factoring with varimax rotation, assessed whether the items loaded onto their respective constructs. With a coefficient cut-off value set at .30, all items appropriately loaded onto their designated constructs. Cross-loadings were observed for three items: Item 13 ("establish clear and unbiased procedures that make it easy for regulators to assess and process ethical violations") cross-loaded onto the Environment construct at .326, while loading onto the Governance construct at .620. Item 16 ("freely disclose and explain the effects of specific risks and/or opportunities on their ability to improve environmental, social, and governance practices") cross-loaded onto the Environment construct at .351 and the Social construct at .315, while loading onto the Governance construct at .465. Item 9 ("disclose to the public any gaps in employee pay/salary") cross-loaded onto the Environment construct at .323, while loading onto the Social construct at .523.

The three-factor model explained 56.17% of the total variance for the ESG-Perception scale. Significant interrelationships were identified among the items, and Bartlett's test of sphericity confirmed that the correlation matrix was not an identity matrix ( $\chi^2(120, N = 302) = 1853.37, p < .001$ ). Additionally, the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy was .930, surpassing the recommended threshold of .6, indicating the sample size was sufficient for the analysis.

## **7.2 Correlations Among Latent Constructs of ESG-Perception Scale and Internal Consistency Estimates**

The conceptual relationships between the constructs within the ESG-Perception scale showed moderate correlations (Cohen, 1992). Specifically, the Environmental factor had a significant positive correlation with both the Social factor ( $r = .61, p < .01$ ) and the Governance factor ( $r = .68, p < .01$ ) (Table 9). Additionally, the Social factor was significantly positively correlated with Governance ( $r = .56, p < .01$ ). These moderate correlations, combined with the absence of multicollinearity, indicate meaningful relationships between the variables in the ESG-Perception scale. Furthermore, the reliability or internal consistency of the items was assessed using Cronbach's alpha ( $\alpha$ ), which demonstrated high overall internal consistency for the ESG-Perception scale ( $\alpha = .90$ ). The subscales also showed strong internal consistency, with alpha values of .85 for the Environmental factor, .78 for the Social factor, and .81 for the Governance factor.

## **7.3 Convergent and Discriminant Validity of ESG-Perception Scale**

Convergent validity was established for ESG-Perception scale. Diversity and inclusion correlated moderately with it (.55): diversity and inclusion and environment (.46), diversity and inclusion and social (.41), and diversity and inclusion and governance (.56) (Table 9, Research question 5). These suggest that the more strongly managers and executives view their organizations as inclusive, the more likely they are to endorse the implementation of ESG principles. Similarly, leadership quality and styles also correlated moderately with it: ethical leadership and environment (.49), ethical leadership and social (.44), and ethical leadership and governance (.50); transformational leadership and environment (.51), transformational leadership and social (.33), and transformational leadership and governance (.58); transactional leadership and environment (.47), transactional leadership and social (.45), and transactional leadership and governance (.53); and authentic leadership and environment (.53), authentic leadership and social (.53), and authentic leadership and governance (.59). Altogether, this suggests that the more strongly managers and executives demonstrate high leadership qualities and styles, the more likely they are to endorse the adoption and implementation of ESG standards. Although the correlations are low, personality and environment (.18) and personality and governance (.22) indicated some convergent validity, suggesting the influence of personality in endorsement of environmental and governance standards.

Results of evaluation of discriminant validity using the two approaches (HTMT and CI) is mixed. The HTMT's regarding correlations among three factors (ESG) were within the threshold of less than .90 for two of three correlations (Cheung et al., 2024; Henseler et al., 2015; Rönkkö & Cho, 2022):  $r_{\text{environment-social (E-S)}} = .783$ ,  $r_{\text{social-governance (S-G)}} = .819$ , and  $r_{\text{environment-governance (E-G)}} = .926$  (Research question 6). The results indicate potential issue with discriminant validity between environment and governance construct. Similarly, the upper bound of the confidence interval for the CFA factor correlation among the three constructs (ESG) is strictly less than 1 (Rönkkö & Cho, 2022): Lower and upper level CI for factor correlation for Environment and Social (E-S) = [0.672, 0.828]; Lower and upper level CI for factor correlation for Environment and Governance (E-G) = [0.745, 0.875]; and Lower and upper level CI for factor correlation for Social and Governance (S-G) = [0.612, 0.788]. None of the confidence intervals includes or exceeds 1, thereby establishing ESG-Perception as demonstrating discriminant and convergent validity.

Table 9: Means and Correlations of ESG-Perception Scale, Personality, Diversity and Inclusion, and Ethical, Transformational, Transactional, and Authentic Leadership.

Variable	Number of items	Mean (SD)	Cronbach's alpha											
				1	2	3	4	5	6	7	8	9	10	
1 ESG-Perception	16	3.80 (.65)	.90	1										
2 Environment	6	3.84 (.76)	.85	.89**	1									
3 Social	5	3.59 (.80)	.78	.84**	.61**	1								
4 Governance	5	3.96 (.71)	.81	.85**	.68**	.56**	1							
5 Diversity and inclusion	7	3.89 (.64)	.83	.55**	.46**	.41**	.56**	1						
6 Personality	10	4.58 (.78)	.63	.12*	.18**	-.09	.22**	.23**	1					
Leadership quality and style														
7 Ethical Leadership	23	4.48 (.79)	.90	.55**	.49**	.44**	.50**	.62**	.19**	1				
8 Transformational leadership	7	4.00 (.66)	.84	.55**	.51**	.33**	.58**	.73**	.28**	.61**	1			
9 Transactional leadership	12	3.88 (.56)	.79	.56**	.47**	.45**	.53**	.71**	.11	.57**	.71**	1		
10 Authentic leadership	16	3.84 (.54)	.85	.59**	.53**	.41**	.59**	.62**	.28**	.62**	.65**	.69**	1	

\*\* p < 0.01; \* p < 0.05

#### **7.4 Factor Structure of ESG-Perception Scale (First-order CFA)**

The adequacy of the hypothesized three-factor structure is outlined in Table 10 and illustrated in Figure 1b. The model, a 16-item, three-factor first-order CFA structure (environmental, social, and governance), showed acceptable fit based on various goodness-of-fit indices, addressing Research Question 7. Importantly, all factor loadings were statistically significant, ranging from 0.60 to 0.73. With all loadings above 0.50, this indicates the formation of strong factors, in line with the recommendations of Costello and Osborne (2005).

#### **7.5 Gender and Race Invariance of ESG-Perception Scale**

The findings on measurement invariance of the ESG-Perception factor structure across gender and race are summarized in Table 10 (Research question 8). Configural and metric (weak factorial) invariance were successfully established, indicating that the model with equal factor loadings across genders and races fits just as well as the model with freely varying parameters. Configural invariance confirms that the structure of the latent variables remains consistent across gender and race, suggesting that the questions reliably represent perceptions of ESG standards regardless of average score differences. Likewise, metric invariance shows that the relationships between the observed variables and latent factors are consistent across genders and races.

Additionally, scalar (strong) invariance was supported based on changes in CFI, allowing for valid comparisons of latent means between gender and race groups. The analysis of strict/residual invariance indicated that measurement errors were similar across genders and races, as shown by changes in CFA for gender and RMSEA for race. This consistency suggests that any response variability was uniform, demonstrating that the instrument measured the construct with similar precision across both groups.

#### **7.6 Unidimensionality vs. Multidimensionality of the ESG-Perception Scale (Bifactor CFA)**

The weaker fit of the single-factor CFA model suggests that a single-factor solution does not adequately explain the data, supporting the conclusion that the scale is multidimensional rather than unidimensional (Figure 1a). The poor fit indicates that reducing the data to a single factor oversimplifies the structure, reinforcing the need for further examination using models like the bifactor model. However, additional analysis with the bifactor model provided greater clarity. The bifactor model demonstrated a strong fit, as evidenced by goodness-of-fit indices ( $\chi^2(df = 88, N = 302) = 121.36, p < 0.0005$ ; RMSEA = 0.035 [C.018, .040]; CFI = .981; TLI = .974) (see Table 10, Figure 1c). The strong fit of the bifactor model indicates that both the general factor and specific sub-factors (social, environmental, and governance) are well-represented in the data, supporting the idea that multidimensionality exists. Despite this, a comprehensive examination of the fit statistics and reliability indices revealed mixed results, making it difficult to draw a definitive conclusion about whether the scale is unidimensional or multidimensional.

The Average Relative Parameter Bias (ARPB) was relatively low at 0.053, indicating an acceptable model fit and reliable parameter estimates, as it falls below the recommended threshold of 10-15% (Muthén et al., 1987; Rodriguez et al., 2016a, as cited in Dueber, 2017) (Table 11). The construct reliability of the general factor ( $H = .899$ ) exceeded the recommended value of .80, suggesting that the construct is likely to replicate well across different samples. Additionally, the coefficient omega ( $\omega$ ), which measures the total reliability of the scale, was greater than .80 for both the general and specific factors, except for the social factor ( $\omega = .786$ ), implying high reliability.

Table 10: CFA Models, Goodness-of-Fit Indices, and Measurement Invariance Tests across Gender and Race for ESG-Perception Scale

Model/Error Correlation	$\chi^2$	<i>df</i>	$\chi^2/df$	RMSEA (90% CI)	$\Delta$ RMSEA	SRMR	CFI	$\Delta$ CFI	TLI
<b>GOODNESS-OF-FIT INDICES</b>									
Single-factor model	305.25	104	2.94	.080 [.070, .091]	N/A	.060	.887	N/A	.869
First-order 17-item (no error correlation)	152.70	101	1.51	.041 [.027, .054]	N/A	.039	.971	N/A	.965
Bi-factor model	121.36	88	1.38	.035 [.018, .040]	N/A	.032	.981	N/A	.974
<b>GENDER INVARIANCE</b>									
Model 1 (Configural/pattern invariance)	326.57	202	1.62	.064 [.051, .077]	N/A	.057	.933	N/A	.920
Model 2 (Metric/weak factorial invariance)	354.90	215	1.65	.066 [.053, .078]	-.002	.076	.924	.009	.916
Model 3 (Strong/scalar invariance)	368.94	231	1.59	.063 [.051, .075]	.003	.076	.926	-.002	.923
Model 4 (Strict/residual invariance/invariant uniqueness)	383.33	247	1.55	.061 [.049, .072]	.005	.079	.926	-.002	.928
<b>RACE INVARIANCE</b>									
Model 1 (Configural/pattern invariance)	285.73	202	1.42	.052 [.038, .066]	N/A	.055	.955	N/A	.947
Model 2 (Metric/weak factorial invariance)	302.81	215	1.40	.052 [.038, .065]	.000	.070	.953	.002	.948
Model 3 (Strong/scalar invariance)	319.18	231	1.38	.050 [.036, .063]	.002	.070	.953	.000	.951
Model 4 (Strict/residual invariance/invariant uniqueness)	402.45	247	1.62	.065 [.053, .076]	-.013	.075	.917	.033	.919

*Note:* N/A (Not applicable). The analysis involves loadings (measurement coefficients) and intercepts (measurement intercepts) of different models. Model 1 (Configural/pattern invariance) has all parameters, factor loadings, and intercepts as free and allowed to vary among groups. Model 2 (Metric/weak factorial invariance) assumes equal measurement coefficients across groups. Model 3 (Strong/scalar invariance) assumes equal measurement coefficients and intercepts across groups. Finally, Model 4 (Strict invariance) assumes equal covariances of measurement errors across groups.

Table 11: Standardized Factor Loadings of CFA Models of ESG-Perception Scale and Reliability Indices of Bifactor CFA Model

Item/ factor	Factor loading		Bifactor factor loading and reliability indices <sup>a</sup>							
	Single- factor	First- order	Factor loading		Reliability indices					
			General factor loading	Specific factors loading	ECV	$\omega/\omega_S$	$\omega_H/\omega_{HS}$	Relative Omega ( $\omega_R$ )	H	IECV
General factor					.739	.919	.830	.903	.899	
Specific factor										
<b>Environment</b>					.184	.847	.148	.175	.376	
Item 1	.69	.73	.65	.34						.785
Item 2	.63	.66	.57	.37						.704
Item 3	.64	.67	.62	.24						.870
Item 4	.70	.73	.70	.21						.917
Item 5	.63	.68	.58	.38						.700
Item 6	.65	.67	.64	.19						.919
<b>Social</b>					.372	.786	.279	.355	.511	
Item 7	.51	.62	.47	.44						.533
Item 8	.59	.69	.56	.42						.640
Item 9	.61	.68	.61	.26						.846
Item 10	.47	.61	.42	.56						.360
Item 11	.54	.60	.53	.24						.830
<b>Governance</b>					.254	.820	.189	.230	.428	
Item 12	.65	.72	.63	.33						.785
Item 13	.62	.70	.59	.40						.685
Item 14	.61	.69	.56	.40						.566
Item 15	.58	.63	.54	.31						.752
Item 16	.66	.68	.68	.11						.974

<sup>a</sup>Model-based reliability indices or coefficients were calculated using Dueber's (2017) calculator. Percent of Uncontaminated Correlations (PUC) = 0.708; Explained common variance (ECV, of General Factor) = 0.739; Average Relative Parameter Bias (ARPB) = 0.053.

Coefficient Omega or Omega ( $\omega$ ); OmegaS ( $\omega_S$ , specific factor saturation coefficient); Omega hierarchical or OmegaH ( $\omega_H$ , hierarchical factor saturation coefficient); OmegaHS ( $\omega_{HS}$ , hierarchical subscale saturation coefficient); Relative Omega ( $\omega_R$ , OmegaH/Omega); H (Construct Replicability); and IECV (Item-Exclusivity Corrected Variance). Review Rodriguez et al. (2016a, 2016b) and Dueber (2017) for definitions and discussions of terms (bifactor model) and reliability indices.

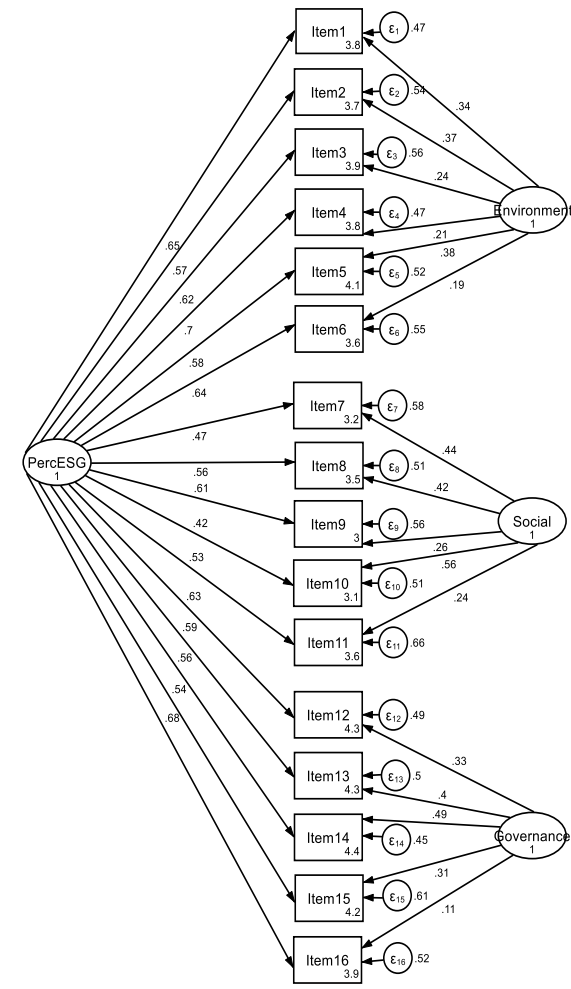
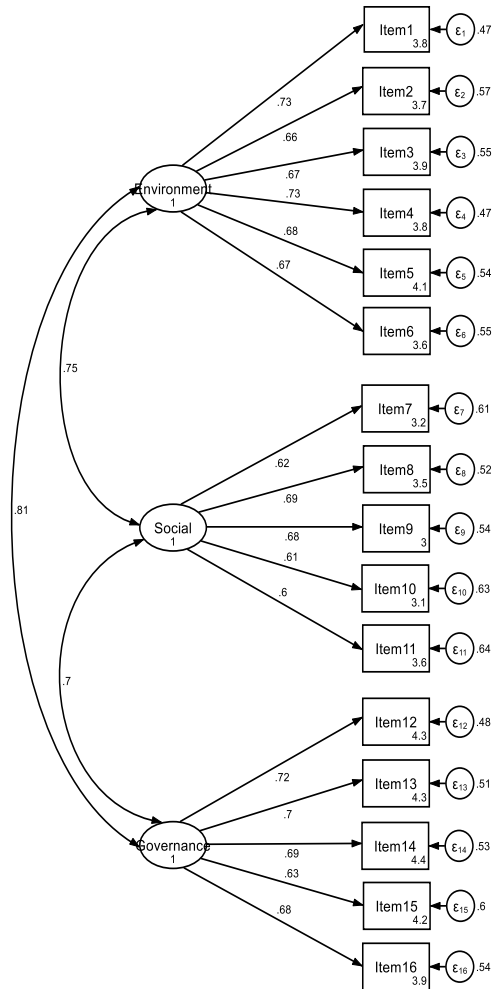
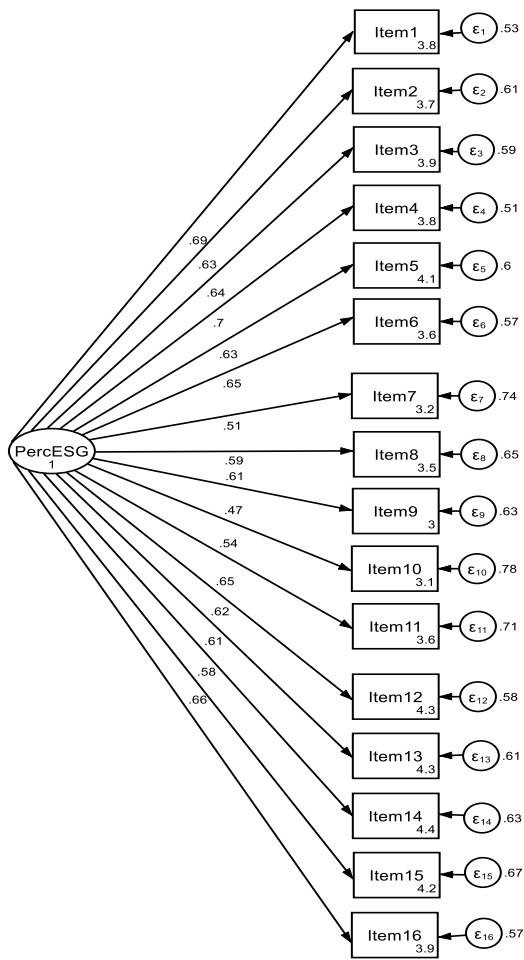


Figure 1a. Single-Factor Confirmatory Analysis of the ESG-Perception Scale.

Figure 1b. First-Order Confirmatory Factor Analysis of the ESG-Perception Scale.

Figure 1c. Bifactor Confirmatory Factor Analysis of the ESG-Perception Scale.

Note: Standardized estimates are reported. All loadings are statistically significant ( $p < .01$ ), except for items 4 and 6 under Environment and item 16 under Governance in the specific factor of the bifactor model (Figure 1c).  $e = \epsilon = \text{error}$ .

The general factor's relative omega ( $\omega_R$ ) value was 0.903, surpassing the recommended cutoff of  $\geq .80$  (Rodriguez et al., 2016a), indicating that the majority of the scale's reliability is driven by the general factor. The relative omega values for the specific factors ranged from .175 to .355, suggesting that these factors contributed less to the overall scale. Both values support the unidimensionality of the scale. Furthermore, the Explained Common Variance (ECV) for the general factor was .739, and the Percent of Uncontaminated Correlations (PUC) was .708, both exceeding the recommended threshold of .70 (Rodriguez et al., 2016a), further supporting the scale's unidimensionality.

In general, the combination of PUC (.708), ECV (.739), and Omega Hierarchical ( $\omega_H$ ) (.830) supports treating the scale as primarily unidimensional (Research Question 9). As noted by Reise et al. (2013), when PUC values are lower than .80, and ECV values exceed .60 with OmegaH greater than .70, the scale can still be interpreted as primarily unidimensional, even if some multidimensionality exists (as cited in Dueber, 2017). The general factor accounted for 91.9% of the total variance ( $\omega = .919$ ), indicating that it explains most of the variance, with specific factors contributing 8.1%.

However, Item-Exclusivity Corrected Variance (IECV) values for most items fell below the .80 threshold (Stucky & Edelen, 2015), with the exception of items 3, 4, 6, 11, and 16. The lower IECV values suggest that specific items are influenced by both the general factor and specific factors, implying that some items are not solely influenced by the general factor, indicating that multidimensionality may be present. IECV evaluates how much variance in an item is explained by the general factor versus specific factors, and these results imply that the common variance is not entirely unidimensional (Rodriguez et al., 2016a).

Additional bifactor reliability indices suggest possible multidimensionality. While the general factor explained a significant portion of the variance ( $\omega = .919$ ,  $\omega_H = .830$ ), the specific factors also made notable contributions ( $\omega_S$  ranging from .786 to .847). The relatively high OmegaS ( $\omega_S$ ) values for the specific factors (Environment  $\omega_S = 0.847$ , Social  $\omega_S = 0.786$ , Governance  $\omega_S = 0.820$ ) suggest that these factors contribute meaningfully to the variance in the data and support the notion that the data exhibit some multidimensionality, as they explain a non-trivial portion of the variance. In fact, some variance in the observed variables is specific to subdomains such as social and environmental factors. These findings suggest that while the general factor plays a dominant role, there is also meaningful multidimensionality within the ESG-Perception scale.

In conclusion, while the general factor explains a significant portion of the variance, and the high ECV,  $\omega_H$ , and  $\omega_R$  values suggest that the scale can be treated as unidimensional, the substantial contributions of the specific factors ( $\omega_S$  values) and IECV values suggest multidimensionality cannot be completely ruled out. Thus, the ESG-Perception scale exhibits some degree of multidimensionality, particularly with respect to the specific factors (environmental, social, governance). However, the general factor's dominance in the variance suggests that the scale may still be interpreted as primarily unidimensional for certain purposes. The choice of whether to treat it as unidimensional or multidimensional will depend on the specific research goals and context (Research Question 9).

### **7.7 Controlling for Common Method Bias: Harman approach**

The findings from Harman's single-factor test suggest that common method bias is unlikely to be a major concern in this dataset, as the first factor explains only 41.55% of the total variance, which is below the widely recognized 50% threshold.

## **8. Discussion**

The current analysis explored the factor structure of the ESG-Perception scale by employing various CFA models to evaluate the adequacy of the hypothesized three-factor structure. It also examined whether the scale reflects a single underlying factor, remains consistent across gender and race, allows for comparisons of latent means between these groups, and whether the scale is unidimensional or multidimensional. The CFA results supported the three-factor structure of the ESG-Perception scale (environment, social, and governance), indicating that the observed items effectively capture the core constructs. Additionally, the findings suggest that each factor aligns consistently with the ESG-Perception scale, confirming the scale's appropriateness for measuring internal stakeholders' perceptions of ESG standards. Insights from this analysis can inform the adoption and implementation of ESG practices within organizations.

### **8.1 Convergent and Discriminant Validity**

Convergent validity was established for the ESG-Perception scale, emphasizing its relevance in assessing diversity and inclusion issues within an organization. Since diversity and inclusion (social) are integral components of ESG, it is unsurprising that moderate correlations with ESG-Perception were found. In fact, board diversity is known to influence ESG performance, although the power of influential CEOs tends to weaken such performance (Donkor et al., 2023). Nevertheless, organizational diversity has some influence on ESG performance and outcomes (Hafsi & Turgut, 2013; Harjoto et al., 2015; Romano et al., 2020). The more internal stakeholders perceive their organizations as inclusive, the more likely they are to endorse the implementation of ESG standards, viewing them as instrumental in promoting diversity and inclusion goals within organizations.

Convergent validity also supports the association between the ESG-Perception scale and leadership styles. This is consistent with previous studies that highlighted the positive effects of leadership styles (e.g., transformational, transactional, authentic) on CSR-related activities, environmental and social outcomes (Changar & Atan, 2021), ESG performance (Zhu & Huang, 2023), and ethical behavior and social responsibility (Shapira-Lishchinsky, 2018; Zhu & Huang, 2023). The higher the leadership quality and styles of managers and executives, the more likely they are to endorse the adoption and implementation of ESG standards, viewing them as an integral part of organizational existence and ethical responsibility.

Although the effects are minimal, convergent validity established some associations between ESG-Perception and personality characteristics. This association is consistent with previous studies, in which CEOs' personality traits (e.g., conscientiousness, openness, narcissism, extraversion) were found to influence corporate governance practices, strong ethical standards, approaches to social responsibility, engagement in CSR activities, and ESG performance (Gao et al., 2023; Ernawan & Daniel, 2019; Husted & Allen, 2007; Mukherjee, 2022; Petrenko et al., 2016; Villalba-Ríos et al., 2022). The effects of personality on endorsement of ESG are a two-edged sword. On the one hand, personality traits such as conscientiousness enhance responsibility and attention to detail, which may facilitate governance and environmental stewardship. Conscientious leaders are likely to focus on long-term sustainability goals, ethical governance, and fulfillment of obligations to stakeholders (Husted & Allen, 2007). Similarly, openness to experience facilitates innovation and forward-thinking, which can influence a leader's endorsement of ESG initiatives and foster progressive approaches to ESG and corporate social responsibility (Petrenko et al., 2016). On the other hand, a narcissistic personality may lead to the pursuit of counterproductive goals concerning ESG standards. A narcissistic leader may embrace ESG and CSR initiatives that

promote personal reputation with superficial or self-serving commitments to ESG objectives rather than genuine outcomes (Gao et al., 2023).

In addition to convergent validity, discriminant validity was established between the Environmental and Social constructs, showing that both have clear conceptual boundaries. Managers and executives recognize the distinctiveness of the environmental construct, which pertains to sustainability and resource management, from the social construct, which addresses labor practices and community engagement. Indeed, the technical or regulatory compliance required for environmental sustainability differs in various ways from the organizational and regulatory requirements for employee welfare and community engagement. Managers and executives appear to discern these differences, as evidenced by the discriminant validity of both constructs.

Likewise, the distinctiveness of the Social construct from the Governance construct suggests that the social aspects of ESG, which focus on stakeholder relations, employee well-being, and community impacts, can be differentiated from the Governance construct, which deals with leadership, transparency, ethical decision-making, and regulatory compliance. This differentiation occurs despite governance influencing employee performance (Osei et al., 2022) and shaping social policies within organizations. Overall, despite the influence of Social and Governance elements on one another, they remain separate entities within organizational contexts.

However, it is not surprising that discriminant validity between the Environment and Governance constructs was not fully established using the two approaches. At first glance, these constructs may appear to share overlapping conceptual dimensions. A possible explanation could be that governance practices in some industries are directly tied to environmental performance, such as governance standards requiring environmental compliance or sustainability reporting. The main focus of corporate social responsibility (CSR) often relates to environmental concerns, similar to the environmental-governance conundrum peculiar to ESG issues. Many organizations integrate environmental sustainability into governance frameworks, especially given that environmental issues are often overseen by specific committees or through regulatory compliance. This integration may blur the perspectives of managers and executives on environmental and governance issues within organizations. In general, governance practices might directly influence environmental outcomes.

In some industries, such as energies or mining, environmental performance is heavily regulated by governance standards. The intertwining of environmental and governance standards often leads to a sectoral focus on environmental governance, to the extent that managers and executives may inadvertently struggle to differentiate between the two or may assign similar importance to both in their responses.

## **8.2 Unidimensionality versus Multidimensionality**

The initial analysis of the factor structure using a single-factor model indicated poor model fit, suggesting that the scale is multidimensional. The bifactor model provided deeper insights into the scale's structure, showing that both the general factor (reflecting the overall construct of the ESG-Perception scale) and the specific factors (representing the three sub-constructs) contribute to measuring the scale. Both the first-order and bifactor models effectively capture the scale's measurement properties, with the observed variables contributing collectively and individually to assessing the overall construct and its sub-constructs. These findings align with Reise et al.'s (2013) proposition that a well-fitting first-order model often suggests that a bifactor model might offer an even better fit. Indicators such as a high Percent of Uncontaminated Correlations (PUC), substantial Explained Common Variance (ECV) of the general factor, high Omega Hierarchical

( $\omega$ H), and low OmegaHS ( $\omega$ HS) further support the scale's unidimensionality. However, the lower Item-Exclusivity Corrected Variance (IECV) values for most items, along with the notable contributions of the specific factors ( $\omega$ S), and lack of discriminant validity suggest that multidimensionality cannot be entirely ruled out.

Despite this, the ESG-Perception scale can be analyzed at either the subscale or overall scale level, depending on the study's purpose, participant demographics, research questions or hypotheses, and the context of the empirical investigation. Future assessments, including model fit indices and theoretical exploration, will help clarify whether the scale should be treated as unidimensional or multidimensional.

### **8.3 Gender and Race Invariance**

For gender and race invariance, configural/pattern, metric/weak factorial, and strong/scalar invariance were confirmed. This indicates that models with freely varying factor loadings and intercepts across gender, as well as those with equal factor loadings and intercepts across gender and race, showed a good fit to the data. Thus, full measurement invariance was successfully demonstrated for gender and race. Additionally, an analysis of strict/residual invariance or invariant uniqueness revealed that measurement errors were consistent for both males and females, as well as White/Caucasians and other racial backgrounds, suggesting that any variability or error in responses was similar across gender and race. This indicates that the instrument measured the construct with equal precision for both genders and races.

### **8.4 Strengths and limitations**

This study presents both strengths and limitations. It is the first known investigation to explore ESG perceptions among internal stakeholders and to create an empirically validated scale suitable for studying ESG perceptions, sustainability, and ethical responsibilities. By including workers, managers, and executives from a variety of organizations and industries across the country, rather than focusing on a single organization, the study enhances the generalizability of the scale, its dimensions, and the findings. This research contributes to the field by developing a standardized, non-financial measure of ESG perceptions, addressing a gap in the literature, where similar measures are scarce, and offering a valuable tool for future ESG-related research. Standardizing the ESG perception benchmarks improves the scale's validity and reliability, enabling meaningful comparisons across different cultures, industries, populations, and organizations.

While the scale was developed with a diverse group of stakeholders, the possibility of social desirability bias cannot be excluded, potentially affecting the accuracy of the data. Additionally, despite deriving the items from World Economic Forum ESG metrics, the scale does not claim to capture the entire spectrum of ESG perceptions. The process of standardizing and refining the factor structure led to the removal of certain items, thus limiting the scope of the included ESG benchmarks.

For addressing common method bias, the study employed Harman's Single-Factor Test, acknowledging the limitations associated with this approach. Tehseen et al. (2017) have discussed the strengths and weaknesses of various techniques for assessing common method variance (CMV). Despite the potential influence of CMV on the results, a review of a decade of published studies suggests that "the probability of significant distortion of estimates due to CMV is very limited" (Bozionelos & Simmering, 2022, p. 194), and CMV does not necessarily "invalidate results obtained from same-respondent data" (p. 195). This aligns with the conclusion that "CMV does not pose a serious threat to the validity of research findings" (Fuller et al., 2016, p. 3192).

## **8.5 Implications for Practice and Theory**

The development and validation of the ESG-Perception scale have significant implications for research, practice, and theory in environmental, social, and governance (ESG) initiatives. The ESG-Perception scale provides researchers with a reliable instrument for generating comparable knowledge about perspectives on ESG standards across various populations, settings, and organizations. Utilizing the scale over time to explore factors associated with the endorsement of ESG standards would facilitate the identification of trends and patterns that support ESG adoption and implementation. The convergent validity of the scale also opens avenues for further investigation into the interplay between stakeholder characteristics and their perceptions of ESG.

Understanding stakeholders' perceptions of ESG is essential for organizations committed to these standards. Knowledge derived from the use of the scale can guide organizations in developing effective ESG strategies, improving communication with stakeholders, and attracting and retaining employees who value ESG principles. Additionally, insights gained from research using the scale can help organizations identify and promote diversity, equity, and inclusion goals, thereby enhancing employees' commitment to ESG initiatives. The scale can also assist organizations in gauging stakeholders' priorities and support for proposed ESG initiatives, ultimately fostering stronger relationships between stakeholders and organizations. Similar knowledge can enable organizations to assess the passion of internal stakeholders regarding ESG issues.

As an empirically validated tool, future knowledge generated from research using the ESG-Perception scale can advance the literature on ESG by providing insights into how organizations balance stakeholders' interests and how societal and institutional pressures shape ESG perceptions and practices. This understanding can contribute to the development of ESG-related theory and provide a framework for analyzing the contributions of ESG standards to organizational legitimacy.

Further insights into these implications may be obtained from the following sources: Aguinis & Glavas (2012), Bansal & Song (2017), Brown & Treviño (2006), Carroll (1999), Cho et al. (2015), Crane et al. (2017), Delmas & Toffel (2008), Donaldson & Preston (1995), Eccles et al. (2014), Eccles & Krzus (2010), Elkington (1998), Freeman (1984), Freeman et al. (2010), Friede et al. (2015), Gillan & Starks (2000), Hahn & Kühnen (2013), Hambrick (2007), Hawn & Ioannou (2016), Henisz et al. (2014), KPMG (2020), Matten & Moon (2008), Menghwar & Daood (2021), Orlitzky et al. (2003), Porter & Kramer (2006, 2011), Scherer & Palazzo (2011), Shrivastava (1995), and Surroca et al. (2010). In summary, the ESG-Perception scale not only serves as a research and practice tool but also enriches theoretical frameworks and research agendas surrounding ESG practices.

## **8.6 Recommendations for Future Research**

Similar to the validation conducted with internal stakeholders, future studies could extend the validation of the ESG-Perception scale to external stakeholders. Cross-cultural and cross-national validation could further enhance the scale's validity beyond its current validation in the U.S. Several areas for empirical exploration include: (i) how ESG perceptions vary across different cultural contexts, countries, business environments, industries, and organizations, (ii) the evolution of ESG perceptions over time, particularly in response to economic, political, social, and institutional pressures, global events, and policy changes, (iii) similarities and differences in ESG perceptions across industries, sectors, and between internal and external stakeholders, (iv) the alignment or misalignment between ESG perceptions and actual organizational behaviors and

outcomes, (v) factors influencing stakeholders' endorsement of ESG standards, (vi) the relationship between ESG perceptions and variables such as leadership styles, diversity and inclusion perceptions, motivation, job satisfaction, and organizational commitment, (vii) the interconnection between ESG perceptions, stakeholder commitment, and organizational compliance with ESG standards, (viii) the impact of stakeholder characteristics and organizational culture on ESG perceptions, and (ix) how ESG perceptions affect organizational behavior, practices, and innovation. Insights from these studies would enhance the adoption and implementation of ESG standards within organizations. Additional details in these research areas can be found in the following sources: Aguinis & Glavas (2012), Brown & Treviño (2006), Carroll (1999), Delmas & Toffel (2008), Donaldson & Preston (1995), Eccles et al. (2014), Freeman (1984), Freeman et al. (2010), Hahn & Kühnen (2013), Hambrick (2007), Hawn & Ioannou (2016), Henisz et al. (2014), KPMG (2020), Matten & Moon (2008), Nazari et al. (2022), Porter & Kramer (2006), Shrivastava (1995), Surroca et al. (2010), Waddock & Graves (1997), and Wang et al. (2016).

## **9. Conclusion**

The psychometric analyses and development of the ESG-Perception scale validate its three-factor structure for both workers and managers/executives and highlight its relevance in assessing the endorsement of sustainability and ethical standards in corporate operations. Discriminant validity among the constructs was achieved for the worker data, suggesting the distinctiveness of the scale's conceptual boundaries. Similarly, the clear discriminant validity between the Environmental and Social constructs, as well as the Social and Governance constructs, in the manager/executive data, emphasizes their distinct conceptual boundaries. However, the absence of discriminant validity between the Environmental and Governance constructs points to overlapping conceptual dimensions, which may be particularly indicative of industries where governance practices and environmental performance are closely linked. This suggests that both constructs can be perceived as an integrated whole, where discussions in one domain often influence perceptions in the other.

The bifactor models demonstrated both multidimensionality and unidimensionality for the ESG-Perception scale. However, the choice of whether to treat the scale as unidimensional or multidimensional will depend on the specific research goals and context. Furthermore, measurement invariance across gender and race suggests that future studies can compare latent means across these demographic groups. In summary, the ESG-Perception scale supports the application of Stakeholder and Upper Echelons theories and provides a valuable tool for examining how stakeholders perceive and endorse ESG standards and sustainability practices in corporate settings.

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**References**

- [1] Aguinis, H., & Glavas, A. (2012). What we know and don't know about corporate social responsibility: A review and research agenda. *Journal of Management*, 38(4), 932-968. <https://doi.org/10.1177/0149206311436079>
- [2] Agustina, L., & Sudibyo, Y. A. (2022). Does financial performance moderate the effect of CEO characteristics and stakeholder influence on corporate social responsibility in Indonesia? *Technium Business and Management*, 2(1), 13–29. <https://doi.org/10.47577/business.v2i1.5995>
- [3] Amel-Zadeh, A., & Serafeim, G. (2018). Why and how investors use ESG information: Evidence from a global survey. *Financial Analysts Journal*, 74(3), 87-103. <http://dx.doi.org/10.2139/ssrn.2925310>
- [4] Bansal, P., & Song, H. C. (2017). Similar but not the same: Differentiating corporate sustainability from corporate responsibility. *Academy of Management Annals*, 11(1), 105-149. <https://doi.org/10.5465/annals.2015.0095>
- [5] Berg, F., Kölbel, J. F., & Rigobon, R. (2022). Aggregate confusion: The divergence of ESG ratings. *Review of Finance*, 26(6), 1315-1344. <https://doi.org/10.1093/rof/rfac033>
- [6] Boateng, G. O., Neilands, T. B., Frongillo, E. A., Melgar-Quiñonez, H. R., & Young, S. L. (2018). Best practices for developing and validating scales for health, social, and behavioral research: A primer. *Frontiers in Public Health*, 149, 1-18. <https://doi.org/10.3389/fpubh.2018.00149>
- [7] Bosch-Badia, M., Montllor-Serrats, J. and Tarrazon-Rodon, M. (2014). Corporate social responsibility from the viewpoint of social risk. *Theoretical Economics Letters*, 4, 639-648. doi: 10.4236/tel.2014.48081.
- [8] Bozionelos, N., & Simmering, M. J. (2022). Methodological threat or myth? Evaluating the current state of evidence on common method variance in human resource management research. *Human Resource Management Journal*, 32(1), 194–215. <https://doi.org/10.1111/1748-8583.12398>
- [9] Brown, M. E., & Treviño, L. K. (2006). Ethical leadership: A review and future directions. *The Leadership Quarterly*, 17(6), 595-616. <https://doi.org/10.1016/j.leaqua.2006.10.004>
- [10] Brown, T. A. (2015). *Confirmatory factor analysis for applied research* (2nd ed.). Guilford Press.
- [11] Carroll, A. B. (1999). Corporate social responsibility: Evolution of a definitional construct. *Business & Society*, 38(3), 268-295. <https://doi.org/10.1177/000765039903800303>
- [12] Changar, M., & Atan, T. (2021). The influence of transformational and transactional leadership styles on CSR-related outcomes in financial services companies. *Journal of Business Ethics*, 169(4), 601–616. <https://doi.org/10.1007/s10551-019-04298-y>
- [13] Chen, F. F. (2007). Sensitivity of goodness of fit indexes to lack of measurement invariance. *Structural Equation Modeling: A Multidisciplinary Journal*, 14(3), 464-504. <https://doi.org/10.1080/10705510701301834>
- [14] Cheung, G. W., & Rensvold, R. B. (2002). Evaluating goodness-of-fit indexes for testing measurement invariance. *Structural Equation Modeling*, 9, 233-255. [https://doi.org/10.1207/S15328007SEM0902\\_5](https://doi.org/10.1207/S15328007SEM0902_5)
- [15] Cheung, G. W., Cooper-Thomas, H. D., Lau, R. S., & et al. (2024). Reporting reliability, convergent, and discriminant validity with structural equation modeling: A review and best-practice recommendations. *Asia Pacific Journal of Management*, 41(3), 745–783. <https://doi.org/10.1007/s10490-023-09871-y>

- [16] Cho, C. H., Laine, M., Roberts, R. W., & Rodrigue, M. (2015). Organized hypocrisy, organizational façades, and sustainability reporting. *Accounting, Organizations and Society*, 40, 78-94. <https://doi.org/10.1016/j.aos.2014.12.003>
- [17] Comrey, A. L., & Lee, H. B. (1992). *A first course in factor analysis* (2nd ed.). Lawrence Erlbaum Associates, Inc.
- [18] Crane, A., Henriques, I., Husted, B. W., & Matten, D. (2017). Measuring corporate social responsibility and impact: Enhancing quantitative research design and methods in business and society research. *Business & Society*, 56(6), 787-795. <https://doi.org/10.1177/0007650317713267>
- [19] Cronbach, L. J. (1951). Coefficient alpha and the internal structure of tests. *Psychometrika*, 16(3), 297-334.
- [20] Cronbach, L. J. (1984). A research worker's treasure chest. *Multivariate behavioral research*, 19(2-3), 223-240.
- [21] de Souza Barbosa, A., da Silva, M. C. B. C., da Silva, L. B., Morioka, S. N., & de Souza, V. F. (2023). Integration of environmental, social, and governance (ESG) criteria: Their impacts on corporate sustainability performance. *Humanities and Social Sciences Communications*, 10(1), 1-18. <https://doi.org/10.1057/s41599-023-01919-0>
- [22] Del Baldo, M. (2019). Acting as a benefit corporation and a B Corp to responsibly pursue private and public benefits. The case of Paradisi Srl (Italy). *International Journal of Corporate Social Responsibility*, 4(4), 1-18. <https://doi.org/10.1186/s40991-019-0042-y>
- [23] Delmas, M. A., & Toffel, M. W. (2008). Organizational responses to environmental demands: Opening the black box. *Strategic Management Journal*, 29(10), 1027-1055. <https://doi.org/10.1002/smj.701>
- [24] Donaldson, T., & Preston, L. E. (1995). The stakeholder theory of the corporation: Concepts, evidence, and implications. *Academy of Management Review*, 20(1), 65-91. <https://doi.org/10.5465/amr.1995.9503271992>
- [25] Donkor, A., Trireksani, T., & Djajadikerta, H. G. (2023). Board diversity and corporate sustainability performance: Do CEO power and firm environmental sensitivity matter? *Sustainability*, 15(23), 16142. <https://doi.org/10.3390/su152316142>
- [26] Dueber, D. M. (2017). Bifactor indices calculator: A Microsoft Excel-based tool to calculate various indices relevant to bifactor CFA models. <https://doi.org/10.13023/edp.tool.01>. Retrieved June 24, 2023 from [https://uknowledge.uky.edu/edp\\_tools/1/](https://uknowledge.uky.edu/edp_tools/1/)
- [27] Eccles, R. G., & Klimenko, S. (2019). The Investor Revolution. *Harvard Business Review*, 97(3), 106-116.
- [28] Eccles, R. G., & Krzus, M. P. (2010). *One Report: Integrated Reporting for a Sustainable Strategy*. John Wiley & Sons.
- [29] Eccles, R. G., Ioannou, I., & Serafeim, G. (2014). The impact of corporate sustainability on organizational processes and performance. *Management Science*, 60(11), 2835-2857. <https://doi.org/10.1287/mnsc.2014.1984>
- [30] Elkington, J. (1998). *Cannibals with Forks: The Triple Bottom Line of 21st Century Business*. New Society Publishers.
- [31] Ernawan, K., & Daniel, D. R. (2019). The influence of CEO narcissism on corporate social responsibility disclosure. *Jurnal Akuntansi*, 23(2), 253-268. <https://doi.org/10.24912/ja.v23i2.587>
- [32] European Commission. (2011). *Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions: A renewed EU strategy 2011-14 for Corporate Social Responsibility*. COM(2011) 681 final.

- [33] European Commission. (2020). *Corporate sustainability reporting directive (CSRD)*. [https://ec.europa.eu/info/business-economy-euro/company-reporting-and-auditing/company-reporting/corporate-sustainability-reporting\\_en](https://ec.europa.eu/info/business-economy-euro/company-reporting-and-auditing/company-reporting/corporate-sustainability-reporting_en)
- [34] Ferro-Soto, C., Macías-Quintana, L. A., & Vázquez-Rodríguez, P. (2018). Effect of stakeholders-oriented behavior on the performance of sustainable business. *Sustainability*, 10(12), 1-27. <https://doi.org/10.3390/su10124724>
- [35] Follingstad, D. R., & Rogers, M. J. (2013). Validity concerns in the measurement of women's and men's report of intimate partner violence. *Sex Roles*, 69(3-4), 149-167. <https://doi.org/10.1007/s11199-013-0264-5>
- [36] Freeman, R. E. (1984). *Strategic Management: A Stakeholder Approach*. Boston: Pitman Publishing Inc.
- [37] Freeman, R. E., & Dmytriyev, S. (2017). Corporate Social Responsibility and Stakeholder Theory: Learning From Each Other. *Symphonya. Emerging Issues in Management*, (1), 7-15. doi: <https://doi.org/10.4468/2017.1.02freeman.dmytriyev>
- [38] Freeman, R. E., Harrison, J. S., Wicks, A. C., Parmar, B. L., & De Colle, S. (2010). *Stakeholder theory: The state of the art*. Cambridge University Press.
- [39] Friede, G., Busch, T., & Bassen, A. (2015). ESG and financial performance: Aggregated evidence from more than 2000 empirical studies. *Journal of Sustainable Finance & Investment*, 5(4), 210-233. <https://doi.org/10.1080/20430795.2015.1118917>
- [40] Fuller, C. M., Simmering, M. J., Atinc, G., Atinc, Y., & Babin, B. J. (2016). Common methods variance detection in business research. *Journal of Business Research*, 69(8), 3192-3198. <https://doi.org/10.1016/j.jbusres.2015.12.008>
- [41] Gao, Q., Gao, L., Long, D., & Wang, Y. (2023). Influence of narcissistic CEOs on corporate social responsibility (CSR) choices: The moderating role of the legal environment. *Psychology Research and Behavior Management*, 16, 3199-3217. <https://doi.org/10.2147/PRBM.S414685>
- [42] Gillan, S. L., & Starks, L. T. (2000). Corporate governance proposals and shareholder activism: The role of institutional investors. *Journal of Financial Economics*, 57(2), 275-305. [https://doi.org/10.1016/S0304-405X\(00\)00058-1](https://doi.org/10.1016/S0304-405X(00)00058-1)
- [43] Gosling, S. D., Rentfrow, P. J., & Swann, W. B., Jr. (2003). A very brief measure of the Big-Five personality domains. *Journal of Research in Personality*, 37(6), 504-528. [https://doi.org/10.1016/S0092-6566\(03\)00046-1](https://doi.org/10.1016/S0092-6566(03)00046-1)
- [44] Gregorich, S. E. (2006). Do self-report instruments allow meaningful comparisons across diverse population groups? Testing measurement invariance using the confirmatory factor analysis framework. *Medical Care*, 44(11 Suppl 3), S78-94. <https://doi.org/10.1097/01.mlr.0000245454>
- [45] Hafsi, T., & Turgut, G. (2013). Boardroom diversity and its effect on social performance: Conceptualization and empirical evidence. *Journal of Business Ethics*, 112(3), 463-479. <https://doi.org/10.1007/s10551-012-1272-z>
- [46] Hahn, R., & Kühnen, M. (2013). Determinants of sustainability reporting: A review of results, trends, theory, and opportunities in an expanding field of research. *Journal of Cleaner Production*, 59, 5-21. <https://doi.org/10.1016/j.jclepro.2013.07.005>
- [47] Hambrick, D. C. (2007). Upper echelons theory: An update. *The Academy of Management Review*, 32(2), 334-343. <https://doi.org/10.2307/20159303>
- [48] Hambrick, D. C., & Mason, P. A. (1984). Upper echelons: The organization as a reflection of its top managers. *Academy of Management Review*, 9(2), 193-206. <https://doi.org/10.5465/amr.1984.4277628>
- [49] Harjoto, M., Laksmana, I., & Lee, R. (2015). Board diversity and corporate social

responsibility. *Journal of Business Ethics*, 132(4), 641-660. <https://doi.org/10.1007/s10551-014-2343-0>

[50] Harman, D. (1967). A single factor test of common method variance. *The Journal of Psychology*, 35, 359-378.

[51] Hasan, M. B., Verma, R., Sharma, D., Moghalles, S. A. M., & Hasan, S. A. S. (2024). The impact of environmental, social, and governance (ESG) practices on customer behavior towards the brand in light of digital transformation: Perceptions of university students. *Cogent Business & Management*, 11(1), 1–15. <https://doi.org/10.1080/23311975.2024.2371063>

[52] Hawn, O., & Ioannou, I. (2016). Mind the gap: The interplay between external and internal actions in the case of corporate social responsibility. *Strategic Management Journal*, 37(13), 2569-2588. <https://doi.org/10.1002/smj.2464>

[53] Henisz, W. J., Dorobantu, S., & Narthey, L. J. (2014). Spinning gold: The financial returns to stakeholder engagement. *Strategic Management Journal*, 35(12), 1727-1748. <https://doi.org/10.1002/smj.2180>

[54] Henseler, J., Ringle, C. M., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. *Journal of the Academy of Marketing Science*, 43(1), 115–135. <https://doi.org/10.1007/s11747-014-0403-8>

[55] Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling: A Multidisciplinary Journal*, 6(1), 1–55. <https://doi.org/10.1080/10705519909540118>

[56] Hu, L.-t., & Bentler, P. M. (1998). Fit indices in covariance structure modeling: Sensitivity to underparameterized model misspecification. *Psychological Methods*, 3(4), 424-453. <https://doi.org/10.1037/1082-989X.3.4.424>

[57] Husted, B. W., & Allen, D. B. (2007). Strategic corporate social responsibility and value creation among large firms: Lessons from the Spanish experience. *Long Range Planning*, 40(6), 594–610. <https://doi.org/10.1016/j.lrp.2007.07.008>

[58] IBM Corp. (2021). *IBM SPSS statistics for Windows, Version 28.0*. IBM Corp.

[59] Jensen, U. T., Andersen, L. B., Bro, L. L., Bøllingtoft, A., Eriksen, T. L. M., Holten, A., ... Würtz, A. (2019). Conceptualizing and measuring transformational and transactional leadership. *Administration & Society*, 51(1), 3–33. doi: 10.1177/0095399716667157

[60] Kline, R. B. (2005). *Principles and practice of structural equation modeling* (2nd ed.). Guilford Press.

[61] Kline, R. B. (2023). *Principles and practice of structural equation modeling* (5th ed.). Guilford Publications.

[62] KPMG (2020). *The time has come: The KPMG survey of sustainability reporting 2020*. <https://home.kpmg/xx/en/home/insights/2020/11/the-time-has-come-survey-of-sustainability-reporting.html>

[63] Kyriazos, T. A. (2018). Applied psychometrics: Sample size and sample power considerations in factor analysis (EFA, CFA) and SEM in general. *Psychology*, 9, 2207-2230. <https://doi.org/10.4236/psych.2018.98126>

[64] Langlois, L., Lapointe, C., Valois, P., & de Leeuw, A. (2014). Development and validity of the ethical leadership questionnaire. *Journal of Educational Administration*, 52(3), 310-331. doi: 10.1108/JEA-10-2012-0110

[65] Liu, M., Luo, X., & Lu, W.-Z. (2023). Public perceptions of environmental, social, and governance (ESG) based on social media data: Evidence from China. *Journal of Cleaner Production*, 387, 135840. <https://doi.org/10.1016/j.jclepro.2022.135840>

- [66] MacCallum, R. C., Browne, M. W., & Sugawara, H. M. (1996). Power analysis and determination of sample size for covariance structure modeling. *Psychological Methods*, 1(2), 130-149. <https://doi.org/10.1037/1082-989X.1.2.130>
- [67] Matos, P. (2020, August). *ESG and responsible institutional investing around the world: A critical review*. CFA Institute Research Foundation Literature Reviews, 1-82.
- [68] Matsunaga, M. (2010). How to factor-analyze your data right: Do's, don'ts, and how-to's. *International Journal of Psychological Research*, 3(1), 97-110. <https://doi.org/10.21500/20112084.854>
- [69] Matten, D., & Moon, J. (2008). "Implicit" and "explicit" CSR: A conceptual framework for a comparative understanding of corporate social responsibility. *Academy of Management Review*, 33(2), 404-424. <https://doi.org/10.5465/amr.2008.31193458>
- [70] McDonald, R. P. (1999). *Test theory: A unified treatment*. Erlbaum.
- [71] Meade, A. W., Johnson, E. C., & Braddy, P. W. (2008). Power and sensitivity of alternative fit indices in tests of measurement invariance. *Journal of Applied Psychology*, 93, 568-592. <https://doi.org/10.1037/0021-9010.93.3.568>
- [72] Menghwar, P. S., & Daood, A. (2021). Creating shared value: A systematic review, synthesis and integrative perspective. *International Journal of Management Reviews*, 23(4), 466-485. <https://doi.org/10.1111/ijmr.12252>
- [73] Milfont, T. L., & Duckitt, J. (2010). The Environmental Attitudes Inventory: A valid and reliable measure to assess the structure of environmental attitudes. *Journal of Environmental Psychology*, 30(1), 80–94. <https://doi.org/10.1016/j.jenvp.2009.09.001>
- [74] Moisescu, O. I. (2015). Development and validation of a measurement scale for customers' perceptions of corporate social responsibility. *Management and Marketing Journal*, 13(2), 311-331.
- [75] Mukherjee, K. (2022). *CEO personality & stakeholder engagement*. Electronic Theses and Dissertations. 2385. <https://egrove.olemiss.edu/etd/2385>
- [76] Muthén, B., Kaplan, D., & Hollis, M. (1987). On structural equation modeling with data that are not missing completely at random. *Psychometrika*, 52(3), 431-462. <https://doi.org/10.1007/BF02294365>
- [77] Nazari, M., Nezami, I. M., & Zargar, Z. H. E. (2022). The journey from corporate social responsibility to corporate social innovation: The whys and the hows. *Technium Business and Management*, 2(2), 27–39. <https://doi.org/10.47577/business.v2i2.6539>
- [78] Öberseder, M., Schlegelmilch, B. B., Murphy, P. E., & Gruber, V. (2014). Consumers' perceptions of corporate social responsibility: Scale development and validation. *Journal of Business Ethics*, 124(1), 101–115. <https://doi.org/10.1007/s10551-013-1787-y>
- [79] Oh, H. J., Lee, B., Ma, H. H., Jang, D., & Park, S. (2024). A preliminary study for developing perceived ESG scale to measure public perception toward organizations' ESG performance. *Public Relations Review*, 50(1), 1-13. <https://doi.org/10.1016/j.pubrev.2023.102398>
- [80] Orlitzky, M., Schmidt, F. L., & Rynes, S. L. (2003). Corporate social and financial performance: A meta-analysis. *Organization Studies*, 24(3), 403-441. <https://doi.org/10.1177/0170840603024003910>
- [81] Osei, F., Yankah, R. ., Agyapong, J., & Owusu-Mensah, S. . (2022). The effect of corporate governance elements on employee performance: evident form Ghanaian banking industry. *Technium Business and Management*, 2(3), 6–22. <https://techniumscience.com/index.php/business/article/view/7099>
- [82] Parmar, B. L., Freeman, R. E., Harrison, J. S., Wicks, A. C., Purnell, L., & Colle, S. d.

- (2010). Stakeholder theory: The state of the art. *Academy of Management Annals*, 4(1), 403-445. <https://doi.org/10.5465/19416520.2010.495581>
- [83] Petrenko, O. V., Aime, F., Ridge, J., & Hill, A. (2016). Corporate social responsibility or CEO narcissism? CSR motivations and organizational performance. *Academy of Management Journal*, 59(4), 1206–1234. <https://doi.org/10.5465/amj.2014.0321>
- [84] Podsakoff, P. M., MacKenzie, S. B., Lee, J. Y., & Podsakoff, N. P. (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. *Journal of Applied Psychology*, 88(5), 879-903. <https://doi.org/10.1037/0021-9010.88.5.879>
- [85] Porter, M. E., & Kramer, M. R. (2011). Creating shared value. *Harvard Business Review*, 89(1/2), 62-77.
- [86] Porter, M. E., & Kramer, M. R. (December 2006). Strategy and society: The link between competitive advantage and corporate social responsibility. *Harvard Business Review*, 84(12), 78-92. <https://hbr.org/2006/12/strategy-and-society-the-link-between-competitive-advantage-and-corporate-social-responsibility>
- [87] Principles for Responsible Investment (PRI) (n.d.). *What is responsible investment?* <https://www.unpri.org/introductory-guides-to-responsible-investment/what-is-responsible-investment/4780.article>
- [88] Reise, S. P., Bonifay, W. E., & Haviland, M. G. (2013). Scoring and modeling psychological measures in the presence of multidimensionality. *Journal of Personality Assessment*, 95(2), 129-140. <https://doi.org/10.1080/00223891.2012.725437>
- [89] Reise, S. P., Moore, T. M., & Haviland, M. G. (2010). Bifactor models and rotations: Exploring the extent to which multidimensional data yield univocal scale scores. *Journal of Personality Assessment*, 92, 544-559. <https://doi.org/10.1080/00223891.2010.496477>
- [90] Reise, S. P., Scheines, R., Widaman, K. F., & Haviland, M. G. (2012). Multidimensionality and structural coefficient bias in structural equation modeling. *Educational and Psychological Measurement*, 73(1), 5-26. <https://doi.org/10.1177/0013164412449831>
- [91] Richardson, H. A., Simmering, M. J., & Sturman, M. C. (2009). A tale of three perspectives: Examining post hoc statistical techniques for detection and correction of common method variance. *Organizational Research Methods*, 12(4), 762-800. <https://doi.org/10.1177/1094428109332834>
- [92] Rodriguez, A., Reise, S. P., & Haviland, M. G. (2016a). Applying bifactor statistical indices in the evaluation of psychological measures. *Journal of Personality Assessment*, 98(3), 223-237. <https://doi.org/10.1080/00223891.2015.1089249>
- [93] Rodriguez, A., Reise, S. P., & Haviland, M. G. (2016b). Evaluating bifactor models: Calculating and interpreting statistical indices. *Psychological Methods*, 21(2), 137-150. <https://doi.org/10.1037/met0000045>
- [94] Romano, M., Cirillo, A., Favino, C., & Netti, A. (2020). ESG (Environmental, Social and Governance) performance and board gender diversity: The moderating role of CEO duality. *Sustainability*, 12, 1-16. <https://doi.org/10.3390/su12219298>
- [95] Romansky, L., Garrod, M., Brown, K., & Deo, K. (2021, May). How to measure inclusion in the workplace. *Harvard Business Review*. <https://hbr.org/2021/05/how-to-measure-inclusion-in-the-workplace>
- [96] Rönkkö, M., & Cho, E. (2022). An updated guideline for assessing discriminant validity. *Organizational Research Methods*, 25(1), 6–14. <https://doi.org/10.1177/1094428120968614>
- [97] Rutkowski, L., & Svetina, D. (2014). Assessing the hypothesis of measurement invariance in the context of large-scale international surveys. *Educational and Psychological Measurement*,

74(1), 31–57. <https://doi.org/10.1177/0013164413498257>

[98] Scherer, A. G., & Palazzo, G. (2011). The new political role of business in a globalized world: A review of a new perspective on CSR and its implications for the firm, governance, and democracy. *Journal of Management Studies*, 48(4), 899-931. <https://doi.org/10.1111/j.1467-6486.2010.00950.x>

[99] Schumacker, R. E., & Lomax, R. G. (2004). *A beginner's guide to structural equation modeling* (2nd ed.). Lawrence Erlbaum Associates.

[100] Shapira-Lishchinsky, O. (2018). Ethical aspects of transactional, transformational, and authentic leadership styles. In *International Aspects of Organizational Ethics in Educational Systems* (pp. 43-45). Emerald Publishing Limited. <https://doi.org/10.1108/978-1-78714-777-520181011>

[101] Shrivastava, P. (1995). The role of corporations in achieving ecological sustainability. *Academy of Management Review*, 20(4), 936-960. <https://doi.org/10.5465/amr.1995.9512280026>

[102] Šimanskienė, L., & Župerkienė, E. (2014). Sustainable leadership: The new challenge for organizations. *Forum Scientiae Oeconomia*, 2(1), 81-93.

[103] StataCorp. (2021). *Stata Statistical Software: Release 17*. StataCorp LLC.

[104] Steiger, J. H. (2007). Understanding the limitations of global fit assessment in structural equation modeling. *Personality and Individual Differences*, 42(5), 893–898. <https://doi.org/10.1016/j.paid.2006.09.017>

[105] Stucky, B. D., & Edelen, M. O. (2015). Using hierarchical IRT models to create unidimensional measures from multidimensional data. In S. P. Reise & D. A. Revicki (Eds.), *Handbook of item response theory modeling: Applications to typical performance assessment* (pp. 183–206). Routledge/Taylor & Francis Group.

[106] Surroca, J., Tribó, J. A., & Waddock, S. (2010). Corporate responsibility and financial performance: The role of intangible resources. *Strategic Management Journal*, 31(5), 463-490. <https://doi.org/10.1002/smj.820>

[107] Tabachnick, B. G., & Fidell, L. S. (2019). *Using multivariate statistics*. Pearson.

[108] Tehseen, S., Ramayah, T., & Sajilan, S. (2017). Testing and controlling for common method variance: A review of available methods. *Journal of Management Sciences*, 4, 142-168. <https://doi.org/10.20547/jms.2014.1704202>

[109] Timmons, A. C. (2010). *Establishing factorial invariance for multiple-group confirmatory factor analysis* (KU Guide No. 22.1).

[110] Tucker, L. R., & Lewis, C. (1973). The reliability coefficient for maximum likelihood factor analysis. *Psychometrika*, 38, 1-10.

[111] Turker, D. (2009). Measuring corporate social responsibility: A scale development study. *Journal of Business Ethics*, 85(4), 411-427. <https://doi.org/10.1007/s10551-008-9780-6>

[112] Tziner, A., & Persoff, M. (2024). The interplay between ethics, justice, corporate social responsibility, and performance management sustainability. *Frontiers in Psychology*, 15, Article 1323910. <https://doi.org/10.3389/fpsyg.2024.1323910>

[113] van de Schoot, R., Lugtig, P., & Hox, J. (2012). A checklist for testing measurement invariance. *European Journal of Developmental Psychology*, 9(4), 486-492. <https://doi.org/10.1080/17405629.2012.686740>

[114] Vandenberg, R. J., & Lance, C. E. (2000). A review and synthesis of the measurement invariance literature: Suggestions, practices, and recommendations for organizational research. *Organizational Research Methods*, 3(1), 4-70. <https://doi.org/10.1177/109442810031002>

[115] Verheyden, T., Eccles, R. G., & Feiner, A. (2016). ESG for all? The impact of ESG screening

on return, risk, and diversification. *Journal of Applied Corporate Finance*, 28(2), 47-55.  
<https://ssrn.com/abstract=2834790>

[116] Villalba-Ríos, P., Barroso-Castro, C., & Vecino-Gravel, J. D. (2022). The influence of CEO profile on corporate social responsibility companies: A qualitative comparative analysis. *Corporate Social Responsibility and Environmental Management*, 29(2), 356-366.  
<https://doi.org/10.1002/csr.2205>

[117] Waddock, S. A., & Graves, S. B. (1997). The corporate social performance-financial performance link. *Strategic Management Journal*, 18(4), 303-319.  
[https://doi.org/10.1002/\(SICI\)1097-0266\(199704\)18:4<303::AID-SMJ869>3.0.CO;2-G](https://doi.org/10.1002/(SICI)1097-0266(199704)18:4<303::AID-SMJ869>3.0.CO;2-G)

[118] Walumbwa, F. O., Avolio, B. J., Gardner, W. L., Wernsing, T. S., & Peterson, S. J. (2008). Authentic leadership: development and validation of a theory-based measure. *Journal of Management*, 34(1), 89-126. doi: 10.1177/0149206307308913

[119] Wang, H., Tong, L., Takeuchi, R., & George, G. (2016). Corporate social responsibility: An overview and new research directions. *Academy of Management Journal*, 59(2), 534-544.  
<https://doi.org/10.5465/amj.2016.5001>

[120] Widaman, K. F., Ferrer, E., & Conger, R. D. (2010). Factorial invariance within longitudinal structural equation models: Measuring the same construct across time. *Child Development Perspectives*, 4(1), 10-18. <https://doi.org/10.1111/j.1750-8606.2009.00110.x>

[121] Wood, D. J. (2010). Measuring corporate social performance: A review. *International Journal of Management Reviews*, 12(1), 50-84. <https://doi.org/10.1111/j.1468-2370.2009.00274.x>

[122] World Economic Forum (n.d.). *Explore the Metrics*. Retrieved from <https://www.weforum.org/stakeholdercapitalism/our-metrics>

[123] World Economic Forum (September 2020). *Measuring stakeholder capitalism: Towards common metrics and consistent reporting of sustainable value creation*. Retrieved from [https://www3.weforum.org/docs/WEF\\_IBC\\_Measuring\\_Stakeholder\\_Capitalism\\_Report\\_2020.pdf](https://www3.weforum.org/docs/WEF_IBC_Measuring_Stakeholder_Capitalism_Report_2020.pdf)

[124] Wu, L. Z., Kwan, H. K., Yim, F. H. K., Chiu, R. K., & He, X. (2015). CEO ethical leadership and corporate social responsibility: A moderated mediation model. *Journal of Business Ethics*, 130(4), 819-831. doi: 10.1007/s10551-014-2108-9

[125] Yau, O. H., Chow, R. P., Sin, L. Y., Tse, A. C., Luk, C. L., & Lee, J. S. (2007). Developing a scale for stakeholder orientation. *European Journal of Marketing*, 41(11/12), 1306-1327. doi:10.1108/03090560710821198

[126] Zhu, J., & Huang, F. (2023). Transformational leadership, organizational innovation, and ESG performance: Evidence from SMEs in China. *Sustainability*, 15(7), 5756. <https://doi.org/10.3390/su15075756>

Appendix A: ESG-Perception Scale

<b>ESG-Perception</b>		<b>ESG-PerceptionMD</b>
<p>Below is the ESG-Perception scale used in the present study. Participants were provided with the following question, statement, and response choices.</p> <p>Preliminary question: To what extent do you agree or disagree with the following statements about ESG (i.e., environmental, social, and governance) principles and benchmarks?</p> <p>Statement: Companies should be mandated or required to...</p> <p>Response choices: 1. Strongly disagree 2. Disagree 3. Neither agree nor disagree 4. Agree 5. Strongly agree</p> <p>Companies should be mandated or required to.....</p>		<p>The ESG-Perception scale can be adapted into the ESG-PerceptionMD scale to evaluate companies' adoption or compliance with ESG principles. This adaptation is particularly useful when the objective is to assess how participants perceive a specific company's adherence to ESG standards, which contrasts with evaluating participants' general endorsement of companies' compliance with ESG standards, as examined in the present study.</p> <p>When employing the ESG-PerceptionMD scale to gather data across various organizations and industries, the results are likely to be more appropriate for descriptive analysis. For instance, environmental standards may be more applicable to sectors such as energy or mining compared to finance or business. Consequently, internal consistency measures (e.g., Cronbach's alpha) may be lower and less meaningful in this adapted use.</p> <p>To address this, it's essential to either acknowledge the data's suitability for descriptive analysis or incorporate a 'Not Applicable' (NA) option in the response choices. Similarly, the 13 items removed, as reported in Table 5, may be relevant in this instance. The introductory question and statement could be adjusted to: 'To what extent do you agree or disagree with the following statements about ESG in your company/organization? My company/organization...' or 'The company/organization...'</p>
Item	<b>ENVIRONMENT</b>	<b>ENVIRONMENT</b>
1	Set their emissions targets to comply with the global standards of emissions and pollution (i.e., comply with the goals of emission control, global warming, and climate change).	Sets the emissions targets to comply with the global standards of emissions and pollution (i.e., comply with the goals of emission control, global warming, and climate change).
2	Report the risks and level of emissions that are common with the extraction of raw materials needed to create a product (upstream stage of production).	Reports the risks and level of emissions that are common with the extraction of raw materials needed to create a product (upstream stage of production).
3	Report the strategies and targets put in place to reduce emissions, air pollution, or global temperatures in ways that will enable the public to understand how they address climate change and global warming.	Reports the strategies and targets put in place to reduce emissions, air pollution, or global temperatures in ways that will enable the public to understand how it addresses climate change and global warming.
4	Report in monetary terms how their operations affect water resources and pollute the environment.	Reports in monetary terms how its operations affect water resources and pollute the environment.
5	Report the risks and level of emissions that are common with the processing of raw materials into a finished product (downstream stage of production).	Reports the risks and level of emissions that are common with the processing of raw materials into a finished product (downstream stage of production).
6	Pay fines and penalties for failing to meet the global standards of emissions and pollution.	Pays fines and penalties for failing to meet the global standards of emissions and pollution.
	<b>SOCIAL</b>	<b>SOCIAL</b>
7	Report how much it costs to train employees and present the figures by gender and employees' positions.	Reports how much it costs to train employees and present the figures by gender and employees' positions.
8	Disclose to the public any inequalities in the structures of their organizations.	Discloses to the public any inequalities in the structures of the organization.
9	Disclose to the public any gap in pay/salary of their employees.	Discloses to the public any gap in pay/salary of the employees.
10	Disclose to the public the gender, ethnic, and/or cultural composition of their employees.	Discloses to the public the gender, ethnic, and/or cultural composition of the employees.
11	Report the rate by which employees take off from duty as a result of being injured at work.	Reports the rate by which employees take off from duty as a result of being injured at work.
	<b>GOVERNANCE</b>	<b>GOVERNANCE</b>
12	Develop a clear anti-corruption policies and procedures that describe how they protect their operations and those affected by them.	Develops a clear anti-corruption policies and procedures that describe how they protect its operations and those affected by them.
13	Establish clear and unbiased procedures that will make it easy for regulators to assess and process ethical violations.	Establishes clear and unbiased procedures that will make it easy for regulators to assess and process ethical violations.
14	Establish clear and unbiased procedures that will make it easy for people to disclose or report unethical behaviors and breaking of laws and regulations.	Establishes clear and unbiased procedures that will make it easy for people to disclose or report unethical behaviors and breaking of laws and regulations.
15	Include in their report incidents and prevalence of discrimination and harassment in their workplace.	Includes in its report incidents and prevalence of discrimination and harassment in the workplace.
16	Freely disclose and explain the effects of specific risks and/or opportunities on their ability to improve their environmental, social, and governance practices.	Freely discloses and explains the effects of specific risks and/or opportunities on its ability to improve its environmental, social, and governance practices.

ESG-Perception scale can be used for scholarly work with proper citations without authors' permission.