

Article

Corporate Sustainability Disclosure, Firm Profitability, and Board Diversity: Unveiling the Interrelationships in a Developing Economy

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Abstract

Drawing on stakeholder theory, agency theory, and critical mass theory, this study investigates the relation between board diversity and firm profitability channeled through sustainability disclosure. Employing structural equation modeling, this study analyzes data from annual reports of all publicly listed Georgian entities from 2018 to 2023, covering 246 firm-year observations. The research findings reveal that board diversity (including gender representation, nationality, and number of members) significantly enhances sustainability disclosure, but does not have a measurable impact on firm profitability. Moreover, the results indicate a nonsignificant effect of sustainability disclosure on firm profitability. This study exhibits that control variables such as ownership concentration and CEO duality negatively impact sustainability scores weakening the relationship between ESG disclosure and firm profitability. Report language negatively affects sustainability score and company size plays a favourable role in ESG performance. The results are explained by the country context. This research contributes to the academic discourse on sustainability disclosure, board diversity, and firm profitability and provides new insight into board diversity's role in fostering a sustainable corporate environment from an emerging market's perspective.

Keywords: sustainability disclosure; ESG reporting; board diversity; firm profitability; corporate governance; sustainability; developing countries; Georgia



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1. Introduction

Six of nine planetary boundaries have been transgressed by human activities causing drastic changes in the environment (Richardson et al., 2023). To address grand challenges, strategic joint actions towards sustainability are required globally (Ritala, 2024), and businesses are increasingly expected to contribute to sustainable development by incorporating social and environmental goals (Jaganjac et al., 2024). Demonstrating a commitment to sustainability fosters trust and strengthens relationships with various stakeholders. Consequently, companies may be rewarded for their responsible and sustainability behaviour (Valls Martínez et al., 2022). Thus, scholars highlight the broader societal benefits of adopting sustainable practices (Vallet-Bellmunt et al., 2024). The impact of sustainability performance on a firm's profitability has gained considerable attention requiring researchers

to explore the relationship in different contexts with various variables (Tapaninaho, 2024; Amadi et al., 2023; Oduro et al., 2022).

Board diversity has increasingly become a prominent focus for researchers and business practitioners. A diverse board with a wider range of viewpoints may better reflect the different interests of stakeholders, inspire its perception as a responsible company (Amadi et al., 2023; Alhosani & Nobanee, 2023; Baker et al., 2020). Previous research indicated a positive association between sustainability disclosure, board diversity, and firm value in European-listed firms, highlighting the importance of management practices, stakeholder trust, and female board representation (Qureshi et al., 2020). Moreover, some prior studies in developing economies argued that sustainability disclosure positively affects firm performance (Alodat et al., 2024), and board gender diversity impacts firm performance (Alodat et al., 2023; Sahu et al., 2025).

While some studies found that board diversity features such as gender, age, board capabilities, and board reputation positively influenced sustainability practices (Ismail & Latiff, 2019; Qureshi et al., 2020), others argue that board size and board independence do not affect environmental disclosures (Latif et al., 2020), whereas board gender and tenure diversity negatively impact disclosure practices (Dhar et al., 2024).

However, most studies on board diversity and firm performance have been conducted in developed and regulated economies. But the conflicting evidence is particularly pronounced in developing economies, where governance systems and sustainability reporting practices are still evolving.

Although ESG disclosure, board diversity, corporate social responsibility, and sustainable development are emerging themes (Xu et al., 2025; Panait et al., 2023), no East European or Post-Soviet countries produced influential research on the topic (Alhosani & Nobanee, 2023), indicating the gap in the literature and hence, the need for more research in those countries. Understanding the important role of board diversity may encourage regulators in developing countries to provide wider opportunities to improve the social, economic, legal, and capital market ecosystem. Furthermore, the mediating effect of sustainability disclosure in the relationship between board diversity and financial profitability needs to be explored in developing markets.

While prior literature predominantly assumes a frictionless transmission mechanism where board diversity enhances ESG reporting, which in turn optimizes financial outcomes (Qureshi et al., 2020; Alodat et al., 2023), this study addresses a critical geographical and conceptual gap by shifting the focus to a market where such financial rewards may be absent. Extant research heavily relies on developed, highly regulated markets with mature capital institutions. We challenge this status quo by introducing a manually collected dataset from a post-Soviet, developing economy with recent EU candidacy status (Georgia), characterized by weak market discipline and evolving disclosure mandates. The novelty lies in examining whether boardroom characteristics can independently drive non-financial transparency when the underlying market fails to financially reward such behavior, thereby testing the boundaries of structural decoupling.

Given that various variables may influence firm profitability, our study delves deeper into sustainability disclosure indicators and governance structures. Since previous studies explored the links between sustainability (ESG) disclosure and board diversity on firm performance using different variables and diverse conceptual frameworks (Qureshi et al., 2020; Latif et al., 2020; Al-Qahtani & Elgharbawy, 2020; Ismail & Latiff, 2019; Ali et al., 2025; Alodat & Hao, 2025), which has led to inconsistent results and a fragmented understanding of the phenomenon, our research contributes to the literature by adding nuance to previously disjointed findings. In particular, we offer empirical evidence on the impact of board diversity on firm performance through sustainability disclosure.

Thus, this research contributes to the literature in several ways. First, all environmental, social, and governance indicators were analysed unlike prior studies examining the relationship between board diversity and environmental disclosure only (Xu et al., 2025; Al-Qahtani & Elgharbawy, 2020; Latif et al., 2020; Endo, 2025; Dhar et al., 2024). Additionally, we examine board diversity adopting a wider perspective contrary to prior research exploring board gender and firm value in developed markets (Qureshi et al., 2020; Alodat & Hao, 2025), and board gender diversity and ESG disclosure in European economies (Omenihu et al., 2025). Next, our study critically extends previous findings (e.g., Alodat et al., 2023, 2024; Sahu et al., 2025) and adds value to the relationship between board diversity and firm profitability with the mediating role of ESG disclosure in developing countries. Therefore, this study complements research on the relationship between board diversity, firm profitability, and sustainability disclosure in Georgian listed companies with critical evidence that questions some earlier findings.

Moreover, this study contributes to Stakeholder Theory, Agency Theory, and Critical Mass Theory by presenting empirical evidence on the unique links to important constructs. In contrast to prior studies examined the relationships between board diversity and sustainability disclosure on firm performance providing proofs for Western theories, such as stakeholder, agency, and critical mass theories (Qureshi et al., 2020; Latif et al., 2020; Al-Qahtani & Elgharbawy, 2020; Ismail & Latiff, 2019; Alodat & Hao, 2025; Omenihu et al., 2025), our research questions the applicability of these theories in the developing country context characterized by the lack of the market incentives, ineffectiveness of institutional environment, and deficient regulatory enforcement. Specifically, this research contributes to Critical Mass Theory by demonstrating that demographic and structural board diversity can successfully bypass tokenism to alter corporate reporting behavior, even in institutional environments with low baseline transparency. Concurrently, the contextual boundaries of Stakeholder and Agency theories are identified, proving that the theoretical promise of agency-cost reduction and stakeholder value creation through financial optimization is highly contingent upon the maturity of external market forces.

Thus, this research extends the previous literature and helps resolve ambiguities in the relationships between board diversity, sustainability disclosure, and firm profitability by addressing these issues through empirical analysis. In addition, since board diversity resonates with Sustainable Development Goals (SDGs), examining sustainability disclosure and firm profitability in connection with boardroom diversity would complement the existing studies in this direction.

2. Literature Review and Hypotheses Development

2.1. The Georgian Context of Sustainability Disclosure

Since 2018, Georgian public interest entities with more than 500 employees have been required to report important non-financial indicators, such as those pertaining to human rights, employment, environmental protection, social issues, anti-corruption, and bribery (Article 7, Law of Georgia on Accounting, Reporting and Auditing, 2016). Despite this regulatory requirement, sustainability reporting in Georgia remains at an early stage of development. Existing research consistently indicates that the institutional environment has not yet fully aligned with international accounting, auditing and non-financial reporting standards, resulting in considerable variation in reporting practices (Pirveli, 2020, 2025; Gigauri et al., 2024).

The available evidence suggest that sustainability reporting is concentrated among large companies, primarily in the financial and construction sectors, while the scope and quality of disclosure differ across sustainability dimensions. Environment issues receive considerably less attention than social and governance indicators, suggesting that

companies have not yet adopted a comprehensive approach to sustainability reporting (Pirveli et al., 2025; Gigauri et al., 2024). In contrast, the banking sector has demonstrated a greater progress, addressing corporate social responsibility and sustainability issues in response to growing consumer awareness and stakeholder expectations (Gigauri et al., 2025). These large, financial companies are adopting strategic approaches and engaging in sustainability practices to enhance their reputation, brand image, and attract investors (Gigauri et al., 2024).

These differences across industries can be explained by the broader institutional context. Although reporting has become mandatory for certain entities, sustainability disclosure is influenced by relatively weak external pressure. Previous studies attribute this to the underdevelopment of capital markets and the limited impact of key external stakeholders such as non-governmental organizations, the media, civil society, consumer advocates, and activist groups (Pirveli, 2020, 2025). Consequently, the demand for business (non)financial information remains relatively low, reducing incentives for firms to improve the quality and comprehensiveness of their reporting incentives.

2.2. Theoretical Framework

This study is based on stakeholder theory, agency theory, and critical mass theory. Stakeholder theory explains how organizations consider the interests of individuals or groups affected by their actions and emphasizes the importance of stakeholder relations and the creation of value for them (Nnadi & Mutyaba, 2025). It argues that firms should manage the interests of various stakeholders who affect or are affected by the firm's business operations (Sulemana et al., 2025). In this way, companies can build trust and legitimacy leading to long-term success in the market (Freeman, 2010). The concept suggests that boards of directors, as major decision-makers, are responsible and accountable to a wide range of stakeholders. They have broader responsibilities beyond maximizing shareholder wealth, by considering the interests of other stakeholders like employees, suppliers, customers, regulators, governments, non-governmental organizations, and the public (Ismail & Latiff, 2019; Freeman, 2010). A more diverse board is expected to address the needs of diverse stakeholders, enhancing accountability and transparency (Bing & Amran, 2017).

From a stakeholder perspective, firms create long-term value not only by maximizing profits but also by responding to the expectations of diverse stakeholder groups through responsible environmental, social, and governance practices. Prior research consistently suggests that ESG activities and board diversity strengthen corporate reputation, improve stakeholder relationships, facilitate access to external financing, and enhance long-term performance (Dhaliwal et al., 2014; Qureshi et al., 2020; M. Liu et al., 2024; Sahu et al., 2025; Habib et al., 2025). Likewise, sustainability disclosure is generally viewed as a response to stakeholder expectations and public pressure, promoting transparency, accountability, and legitimacy (Arvidsson & Dumay, 2022; Drempetic et al., 2020; Habib et al., 2025). These studies support the stakeholder theory proposition that addressing ESG concerns contribute to long-term organizational success while creating value for both firms and stakeholders.

Agency theory views the board of directors as the primary mechanism for reducing conflicts of interest between managers and shareholders through effective monitoring and governance (Jensen & Meckling, 2019; Ali et al., 2025). Accordingly, prior studies consistently argue that board independence and board diversity strengthen oversight, reduce information asymmetry, and improve decision quality, ultimately enhancing firm performance (Xu et al., 2025; Sahu et al., 2025; Campanella et al., 2021; Chancharat et al., 2026). Beyond financial oversight, boards are also expected to promote responsible corporate behavior by balancing shareholder interests with broader societal expectations. From this

perspective, both ESG engagement and transparent financial and non-financial disclosure reduce agency costs, strengthen principal-agent relationships, and support long-term value creation (Åberg et al., 2019; Alodat & Hao, 2025).

Critical mass theory suggests that members of minority groups must surpass a particular threshold in order to significantly impact a larger organization (Konrad et al., 2008; Omenihu et al., 2025). Earlier studies argue that one or two women directors are viewed as tokens whose influence on board decision is limited (Kanter, 1977). Consistent with this proposition, several empirical studies find that boards with at least three female directors are more likely to influence sustainability practices and improve ESG disclosure, whereas token representation has a weaker or even insignificant effect (Omenihu et al., 2025; Abdelkader et al., 2024; Amorelli & García-Sánchez, 2021). However, token representation may still improve ESG disclosure, but at a lesser level (Omenihu et al., 2025). On the other hand, gender-balanced boards have a stronger impact on the sustainability performance of financial organizations, thereby defying the critical mass theory (Birindelli et al., 2018).

Collectively, stakeholder theory, agency theory, and critical mass theory provide complementary explanations for the relationships among sustainability disclosure, board diversity, and firm profitability. While stakeholder theory emphasizes value creation through addressing stakeholder expectations, agency theory highlights the governance mechanisms that reduce conflicts of interest, and critical mass theory explains how board composition influences decision-making. Although these theoretical perspectives are prevalent in research in developed economies, empirical evidence from developing countries remains limited and fragmented, particularly regarding the relationship between ESG disclosure, board diversity, and firm profitability (Bing & Amran, 2017; Ismail & Latiff, 2019; Alodat et al., 2024; Sahu et al., 2025; Latif et al., 2020). Furthermore, critical mass theory remains underexplored in terms of board diversity in developing countries, as it has been applied primarily in studies on board gender issues. Consequently, critical questions still remain on whether these theories can be applicable in a weak institutional environment of emerging countries with a lack of market incentives. This gap provides the theoretical foundation for the present study, which offers empirical evidence on whether the above-mentioned theories explain the relationship between board diversity, sustainability disclosure, and firm profitability.

2.3. Hypotheses Development

2.3.1. Board Diversity and Sustainability Disclosure

Studies illustrate that different types of diversity may have varying impacts on sustainability disclosure. While some traits of board diversity positively affect ESG disclosure and firm performance, others may have negative impacts. Prior research has produced mixed evidence regarding the relationship between board diversity and sustainability disclosure. A substantial body of literature suggests a positive relationship between board diversity and sustainability performance (Amadi et al., 2023; Beji et al., 2021; Latif et al., 2020), arguing that the number of female directors has a significant effect on sustainability performance and financial profitability (Amadi et al., 2023). In particular, foreign board members positively influence environmental performance and stakeholder engagement positively contributing to sustainability scores in general (Beji et al., 2021).

By contrast, several studies report that board diversity enhances the quality and extent of sustainability disclosure, although the influence varies across different dimensions of diversity. For example, the analysis of cross-sectional data of large firms in the UK shows that greater female board representation positively influences the disclosure and management of greenhouse gas (GHG) information, whereas a high percentage of directors with a financial and industrial background negatively affects GHG disclosure, and larger firms

and carbon-intensive sectors disclose more GHG information due to greater stakeholder pressure (Al-Qahtani & Elgharbawy, 2020). Similarly, Endo (2025) demonstrates that a balanced approach to gender and expertise diversity is significant for enhancing carbon disclosure. However, other studies report insignificant or negative relationships between board diversity and sustainability disclosure (Dhar et al., 2024; Mercier-Suissa & Aziz, 2015). Thus, evidence on the relationship between board diversity and sustainability disclosure remains mixed.

Furthermore, previous research suggests that various characteristics of board diversity influence materiality disclosure in sustainability reporting, such as board size, board independence, and board activity as well as gender, ethnicity and age of directors (Bing & Amran, 2017). Nevertheless, evidence regarding gender diversity is less consistent, as studies conducted in developing countries report no impact on sustainability disclosure (Ali et al., 2025; Ismail & Latiff, 2019). In contrast, governance characteristics such as CEO duality has a significant negative impact on ESG scores, indicating that concentrated power can hinder accountability, and the percentage of independent directors has a significant positive effect on ESG disclosure (Omenihu et al., 2025; Pirveli, 2025).

Accordingly, the literature distinguishes three dimensions of board diversity: structural diversity (size, independence, duality, committee, meetings), demographic diversity (age, gender, nationality, religion), and cognitive diversity (education, expertise, experience, tenure, multiple directorship) (Xu et al., 2025). Consistent with this classification, the present study examines structural diversity through board size, independence, and CEO duality, and demographic diversity through gender, nationality, and the number of their representation on corporate boards.

H1. Board diversity enhances sustainability disclosure.

2.3.2. Sustainability Disclosure and Firm Profitability

The literature generally suggests that corporate sustainability and disclosure positively contribute to firm profitability by creating value for investors, increasing reputation, meeting stakeholders' expectations, strengthening brand image and consumer relationships, and enhancing innovation performance (Valls Martínez et al., 2022; Nguyen & Nguyen, 2015; M. Harjoto & Laksmana, 2018; Mitra, 2021; Ji et al., 2019). This implies that firms disclosing more information about their sustainability efforts tend to have better financial performance, as highlighted by agency theory.

Overall, empirical studies suggest that sustainability performance and ESG reporting significantly affects financial performance (Amadi et al., 2023; Kahloul et al., 2022; Alodat et al., 2024). However, this relationship varies across firms. Previous studies argue that governance mechanisms, particularly board gender diversity and the presence of sustainability committees strengthen the positive impact of sustainability disclosure on financial performance, consistent with stakeholder theory (Alodat & Hao, 2025). At the same time, firm-specific characteristics may influence financial outcomes. For example, Alodat et al. (2024) found that firm size and firm age were not significantly related to firm performance measures, whereas leverage was negatively related to Tobin's Q, ROE, and ROA, suggesting that higher debt can decrease profitability.

H2. Sustainability disclosure enhances firm profitability.

2.3.3. Board Diversity and Firm Performance

Research findings on the relationship between board diversity and firm profitability are mixed. While some authors report a positive association, others indicate a negative or insignificant effect, suggesting that the relationship is contingent on firm- and context-

specific factors (Baker et al., 2020). Previous studies highlight that different characteristics of boards positively influence the sustainability performance and financial profitability of firms (M. Harjoto et al., 2015), as suggested by stakeholder theory. In particular, higher female representation on corporate boards contributes to increased sustainability disclosure and positively influences firm profitability (Qureshi et al., 2020; Alodat et al., 2023; Sahu et al., 2025). Similarly, board nationality diversity is positively associated with the sustainability performance of a firm, as assumed by agency theory (Khatri, 2024). These positive effects are attributed to the diverse opinion, experience, expertise (i.e., human capital), and knowledge about the market, resulting in innovativeness and better performance (Miller & del Carmen Triana, 2009; M. A. Harjoto & Rossi, 2019; Kabongo & Okpara, 2019). Furthermore, board diversity not only improves firm profitability but also alleviates the negative influence of CEO duality on the financial performance of a company (Pandey et al., 2023).

Despite this broad support, the empirical evidence remains inconclusive as another strand of studies exhibits that board diversity negatively affects the financial performance of companies (C. Liu, 2018). Board diversity can cause conflicts and delay or complicate decision-making (Triana et al., 2014). On the other hand, board diversity affects firm performance when men and women directors are in formal settings, but board diversity performs worse when boards include more male members who lack previous working collaboration with women, as such a context prohibits the integration of women directors' perspectives (Havrylyshyn et al., 2023). Thus, the contextual factors influence this relationship.

H3. Board diversity enhances firm profitability.

H4. Board diversity enhances firm profitability through sustainability disclosure.

Figure 1 explains the research framework and the relationships between variables.

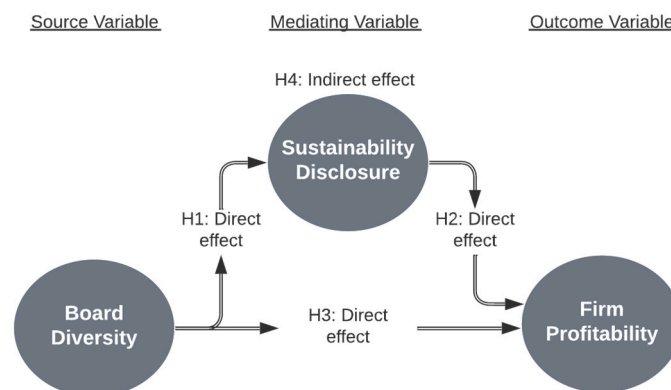


Figure 1. Conceptual Model with Mediating Effects (Source: authors' own).

3. Materials and Methods

3.1. Research Design and Sample

In this research, data from all publicly listed Georgian entities between 2018 and 2023 were examined. Corporate annual reports were analyzed and manually coded based on the EU's sustainability directive, which includes environmental, social, and governance (ESG) indicators, resulting in a sample of 246 firm-year observations. The panel is unbalanced because complete annual reports were not available for all firms across the entire study period. The year 2018 serves as the starting point because it marks the first year when the corporate sector data in Georgia became publicly accessible, following the implementation of the country's revised financial transparency reform (Pirveli et al., 2026a).

Georgia represents a compelling case for studying sustainability disclosure in a developing economy context, given its weak market discipline (Pirveli, 2020), limited stakeholder pressure (Pirveli, 2025), underdeveloped regulatory environment (Pirveli et al., 2026b), and a recently amended corporate governance code (World Bank, 2021). Financial variables were extracted from the same annual reports, retrieved from the official website of the Ministry of Finance of Georgia (www.reportal.ge). Additionally, unlike previous studies that relied on index-based datasets (e.g., Qureshi et al., 2020; Ismail & Latiff, 2019; Latif et al., 2020; Sahu et al., 2025; Al-Qahtani & Elgharbawy, 2020; Alodat & Hao, 2025; Omenihu et al., 2025; Alodat et al., 2024), six years of data from the management reports of all listed Georgian firms were manually collected. We developed an ESG scorecard based on the EU's directive and analyzed the data using Ordinary Least Squares (OLS) and Structural Equation Modeling (SEM). All descriptive statistics, chi-squared tests, Pearson correlations, multiple linear regressions, and SEM analyses were performed using STATA 17.

In addition, we extend the dataset to incorporate firms that voluntarily participate in Georgia's Best Annual Reporting and Transparency Award (BARTA), an initiative aimed at promoting high-quality financial and non-financial disclosure practices. The award primarily targets public interest entities (PIEs), such as banks, insurance companies, financial institutions, and state-owned enterprises. PIEs listed on the local stock exchange that comply with financial reporting standards, receive unmodified audit opinions, and submit timely annual reports to the Service for Accounting, Reporting and Auditing Supervision (SARAS) under the Ministry of Finance of Georgia are automatically nominated for the award. Non-compliant PIEs are excluded from consideration, while non-PIEs may apply voluntarily.

Due to the absence of Georgian corporate data in well-known international databases, data collection is carried out manually. This approach, though time-intensive, enables the construction of a unique Georgian dataset. Sustainability-related information is obtained through a detailed content analysis of management reports (Pirveli et al., 2026a). Corporate governance data is retrieved from the official records of the National Agency of Public Registry of Georgia, and company-level information is sourced from the official portal of the Service for Accounting, Reporting and Auditing Supervision of Georgia.

3.2. Sustainability Disclosure Score

In line with prior literature, we construct a sustainability score (SUST Score) based on the EU's CSRD (2022) (Article 19b), which is aligned with the generally accepted framework and guiding principles of the Global Reporting Initiative (GRI) (Faisal et al., 2020; Orazalin & Mahmood, 2020; Pirveli, 2025; Pirveli et al., 2026a). The score encompasses environmental (E), social (S), and governance (G) dimensions of sustainability disclosure, each comprising five sub-parameters.

To construct the SUST Score, we manually analyze each company's annual report, coding its content based on the sustainability disclosure criteria. This framework captures the evolution from intention to implementation and, ultimately, to performance. Reports that fail to demonstrate disclosure at any of these levels receive no points.

The scoring approach places particular emphasis on measurable outcomes in sustainability reporting. Sub-criteria are categorized into hard and soft issues. Hard issues include measurable metrics. Soft issues refer to more qualitative elements. In line with this distinction, we incorporate linguistic attributes, considering the semantic nature of disclosures. Accordingly, we classify text units based on measurability: unmeasurable (e.g., general commitment to climate action); and measurable (e.g., commitment to limiting global warming in line with the 1.5 °C target of the Paris Agreement) (Pirveli et al., 2026a).

To ensure the reliability and consistency of our coding, we conducted a pre-test to validate our classification rules and approach. Our results were compared with scores assigned under the BARTA. We applied the Intraclass Correlation Coefficient (ICC) using a one-way random-effects model to evaluate the alignment between our scoring and the BARTA jury's assessment. Both the individual and average ICC scores (0.99) indicate a high degree of agreement ($p < 0.01$). These findings support the reliability of our manual coding.

Moreover, following prior suggestions, the coding was done by multiple coders (Garanina & Aray, 2021). The inclusion of multiple coders can help improve quality of coding through identifying, discussing and finding a consensus among the coders. First, each of us individually coded a select sample of corporate management reports. Then, we compared and discussed them, resulting in some adjustments to the coding protocol based on a consensus. To ensure consistency, the reports were coded by one author according to the final coding protocol. The reliability measure was tested by the Krippendorff's alphas and exceeded 0.9 indicating a high level of reliability.

3.3. Other Variables

Another variable of our interest is board diversity (BOARD_DIVERS) (Khatri, 2023; Zampone et al., 2024). Board diversity is measured as a dummy variable equal to 1 if the board comprises at least five members and includes both male and female directors, as well as national and international representation, and 0 otherwise (Qureshi et al., 2020). We adopt an aggregate rather than a disaggregated measure both because the diversity data were available to us at this composite level and because our interest lies in the overall presence of board diversity rather than in any individual dimension in isolation. Diverse boards are considered more effective in fostering comprehensive sustainability discussions, as they integrate a wider range of perspectives, experiences, and value systems. Gender, cultural, and experiential diversity are associated with greater responsiveness to stakeholder concerns and stronger commitments to transparency and sustainability reporting (Cucari et al., 2018; Katmon et al., 2019).

Profitability (PROF), proxied by the return on assets (net income divided by total assets), reflects the firm's financial capacity to support sustainability initiatives. More profitable firms are generally better positioned to allocate resources toward sustainability practices and may be more inclined to disclose such efforts to signal social responsibility and enhance their legitimacy (Masoud & Vij, 2021).

Our model incorporates corporate governance controls known to influence the quality of sustainability disclosures in Georgia: ownership concentration (OWN_CONCEN), and CEO duality (CEO_DUAL) (Pirveli, 2025). Ownership concentration is measured as the percentage of equity held by the largest shareholder (Faisal et al., 2020). High ownership concentration may result in a stronger alignment with the interests of dominant shareholders, who often prioritize short-term financial outcomes over long-term sustainability goals. This concentration of control may therefore lead to lower-quality or less comprehensive sustainability disclosures (Bhimavarapu et al., 2023). CEO duality is captured through a binary variable set to 1 if the CEO also holds a position on the board, and 0 otherwise (Hamad et al., 2020). When the CEO occupies a board seat, it can reduce the independence of the board and constrain its oversight function, potentially weakening its capacity to challenge management and promote detailed sustainability reporting (Faisal et al., 2020).

We control for financial variables that are widely recognized as key determinants of sustainability disclosure: firm size (SIZE), and financial leverage (LEV) (Kolsi & Attayah, 2018). Firm size, measured as the natural logarithm of total assets, is included because larger firms typically have greater public visibility, more resources, and are subject to increased scrutiny from regulators, investors, and other stakeholders. These factors often

incentivize more comprehensive and higher-quality sustainability disclosures (Kuzey & Uyar, 2017). Financial leverage, measured as the ratio of total liabilities to total assets, is included due to its potential influence on disclosure strategies. Highly leveraged firms may be more cautious in their reporting, prioritizing financial over non-financial disclosures if sustainability information is perceived as secondary to creditors' concerns (Li et al., 2018). Leverage can also shape risk perceptions, which in turn may affect the scope and quality of sustainability reporting.

Finally, the model includes disclosure-related control variables: disclosure length (LENGTH), report language (LANG), and audit opinion (AUDITOP) (Ikpor et al., 2022; Orazalin & Mahmood, 2020). Disclosure length serves as a proxy for the level of detail and comprehensiveness provided in the annual report, with longer reports generally reflecting more extensive disclosure practices (Ortiz-Martínez & Marín-Hernández, 2024). Report language captures whether the report is published in both Georgian (mandatory) and English (voluntary). Bilingual reporting may indicate a firm's intention to enhance transparency and legitimacy among international investors by addressing the information needs of foreign stakeholders (Marín-Hernández et al., 2024). Audit opinion reflects the external auditor's assessment of the firm's financial statements. An unmodified audit opinion is typically associated with higher information quality and stronger internal controls, which may positively correlate with the quality of sustainability disclosures (Al-Shaer, 2020).

We run STATA 17 software for the descriptive statistics, chi-squared tests, Pearson correlations, the multiple linear regressions and SEM analysis.

3.4. Model Specification

We base our conclusions on a multivariate analysis. For this purpose, we construct regression models that estimate the drivers of firm profitability. We first analyze the two channels and market effects separately and estimate the following two OLS models:

$$PROF_i = \gamma_0 + \gamma_1 \times Board_Diversity_i + \gamma_2 \times \sum Controls_Institutional + \gamma_3 \times \sum Controls_Firm_Level + \varepsilon_i \quad (1)$$

$$PROF_i = \gamma_0 + \gamma_1 \times SUST_Score_i + \gamma_2 \times \sum Controls_Institutional + \gamma_3 \times \sum Controls_Firm_Level + \varepsilon_i \quad (2)$$

Our model incorporates fixed effects for the key variables (Bhatia & Tuli, 2017). First, we account for industry sensitivity, as industry-specific regulations can significantly influence sustainability disclosure levels (Hassan et al., 2020; Vale & Branco, 2019). Given that our analysis spans the Covid-19 period, we also apply yearly fixed effects to address any temporal variations.

We then estimate whether changes in the sustainability disclosure can be traced to the board diversity by estimating the following OLS regression:

$$SUST_Score_i = \gamma_0 + \gamma_1 \times Board_Diversity_i + \gamma_2 \times \sum Controls_Institutional + \gamma_3 \times \sum Controls_Firm_Level + \varepsilon_i \quad (3)$$

We finally combine the analysis and look at the interplay between board diversity and sustainability disclosure in explaining the variation around firm profitability. To arrive at a full causal mediation analysis, and to avoid potential multicollinearity issues, at this stage of analysis, we switch to the use of structural equation modelling (SEM). The SEM technique is considered a more effective tool for detecting mediating effects compared to OLS (Iacobucci et al., 2007). We observe if the effects of board diversity directly lead to firm profitability, and if so, whether such a link is mediated through sustainability disclosure. The SEM model consists of Equations (1)–(3) and finally includes the following model:

$$PROF_i = \gamma_0 + \gamma_1 \times Board_Diversity_i + \gamma_2 \times SUST_Score_i + \gamma_3 \times \sum Controls_Institutional + \gamma_4 \times \sum Controls_Firm_Level + \varepsilon_i \quad (4)$$

These models serve to understand the structural interdependence between the variables included (H1, H2 and H3).

We follow [Iacobucci et al. \(2007\)](#), which is a variation of the basic mediation method used by [Baron and Kenny \(1986\)](#). To test the model fitness, we apply Delta, Monte Carlo and Sobel tests. We produce the mediation results based on bootstrapping to check indirect effects, according to the approach of [Zhao et al. \(2010\)](#). Finally, we apply options to generate the ratios of (a) the indirect effect to the total effect and (b) the indirect effect to the direct effect.

Although OLS and SEM are well suited to our research questions, we acknowledge that our estimates may be subject to endogeneity, arising from the potential joint determination of board diversity, sustainability disclosure, and profitability, or from unobserved firm-level heterogeneity. To mitigate these concerns, the profitability equation includes a one-period lagged dependent variable, which controls for the persistence of firm performance and reduces reverse causality, and we subject the disclosure equation to a firm fixed-effects specification following a Hausman test. These procedures reduce, but do not fully remove, potential endogeneity. Accordingly, we interpret the reported relationships as robust associations rather than as strictly causal effects, and we identify formal causal identification, through instrumental-variable or dynamic panel methods, as a valuable direction for future research once richer data for Georgian listed firms become available.

4. Results

4.1. Descriptive Statistics

Table 1 presents descriptive statistics for the key variables used in the analysis. The sustainability disclosure indicators in Panel A show relatively low average scores across all three ESG pillars. The overall Sustainability Score (SUST Score) averages 32%, with the Environmental (ENV) and Governance (GOV) dimensions scoring 26% and 34%, respectively, and the Social (SOCL) dimension being slightly higher at 35%. Among the environmental components, *resource use and circular economy* is the most disclosed category (mean = 34%), while *water and marine resources* receive the least attention (mean = 20%). For social indicators, *working conditions* and *respect for human rights* are the most frequently addressed (41% and 38%, respectively). In the governance dimension, *internal control and risk management systems* stands out with the highest average disclosure level (56%), while *political engagements of the undertaking* remain notably underreported (12%).

Panel B reports statistics for corporate governance variables. *Board diversity* (BOARD_DIVERS) is present in 41% of firms, while ownership concentration (OWN_CONCEN) is very high on average (mean = 83%), with the median at 100%. CEO duality (CEO_DUAL) is observed in 19% of the sample.

Panel C summarizes financial variables. The average firm size is GEL 689,106 thousand, with substantial variation. Profitability (PROF) averages 3%, with a minimum of −20%, indicating losses in part of the sample. Leverage (LEV) is relatively high, with a mean of 67%.

Panel D contains control variables. The average length of annual reports is 120 pages. 39% of firms issue reports in a foreign language, and the average audit quality score (AUDITOP), measured as the ordinal rank of audit firm tier, is 1.6 on a 1–3 scale.

Table 2 summarizes the distribution of the Sustainability Disclosure Score (SUST Score) by industry sector and reporting year. The highest average disclosure is observed in the financial sector (mean = 45%), followed by consumer and social services (41%). In contrast, industrial production lags considerably, with a mean score of only 14%. The built environment and strategic infrastructure and utilities sectors report moderate levels of disclosure, averaging 32% and 25%, respectively.

Table 1. Descriptive Summary of Key Variables Used in the Analysis.

	Mean	SD	Min	P50	Max
Part A: Sustainability variables					
SUST Score:	32%	24%	0%	28%	89%
ENV Score:	26%	26%	0%	28%	88%
Climate change mitigation and adaptation	26%	28%	0%	20%	100%
Water and marine resources	20%	27%	0%	0%	80%
Resource use and circular economy	34%	35%	0%	20%	100%
Air pollution	26%	28%	0%	20%	100%
Biodiversity and ecosystems	24%	26%	0%	20%	80%
SOCL Score:	35%	30%	0%	28%	96%
Equal opportunities	35%	33%	0%	20%	100%
Working conditions	41%	32%	0%	40%	100%
Respect for human rights	38%	32%	0%	40%	100%
Training and skills	37%	34%	0%	20%	100%
Social dialogue	26%	30%	0%	20%	100%
GOV Score:	34%	23%	0%	32%	92%
The role of adm., manag. and superv. bodies	25%	27%	0%	20%	100%
Business ethics and corporate culture	39%	36%	0%	40%	100%
Political engagements of the undertaking	12%	16%	0%	0%	60%
Management and quality of relationships	36%	32%	0%	40%	100%
Internal control and risk management systems	56%	25%	0%	60%	100%
Part B: Corporate governance variables					
BOARD_DIVERS	41%	49%	0%	0%	100%
OWN_CONCEN	83%	27%	8%	100%	100%
CEO_DUAL	19%	39%	0%	0%	100%
Part C: Financial variables					
SIZE (in 1000 GEL)	689,106	1,096,296	8304	246,107	4,095,597
PROF	3%	9%	−20%	3%	19%
LEV	67%	40%	9%	68%	188%
Part D: Control variables					
LENGTH	120	97	3	81	619
LANG	39%	49%	0%	0%	100%
AUDITOP	1.6	0.9	1.0	1.0	3.0

A temporal analysis reveals a gradual upward trend in sustainability disclosure over time. The mean SUST Score increased from 28% in 2018 to 37% in 2023, indicating incremental improvements in transparency and ESG reporting practices across the observed years.

Table 3 presents descriptive statistics comparing sustainability scores, corporate governance characteristics, financial indicators, and control variables between firms with and without board diversity. The sample includes 246 firms, of which 100 (41%) exhibit board diversity—defined as having at least one female member, one international member, and a board size of at least five. Chi-square tests confirm statistically significant differences across most variables.

Firms with board diversity report substantially higher sustainability disclosure across all ESG dimensions. The average overall Sustainability Score (SUST Score) is 47% for diverse boards, more than double the 21% observed for firms without board diversity ($\text{Pr} = 159.58, p < 0.01$). This pattern holds for the Environmental (ENV), Social (SOCL), and Governance (GOV) scores as well: board-diverse firms average 41%, 55%, and 45%,

respectively, compared to 16%, 22%, and 26% for non-diverse boards. All differences are statistically significant at the 1% level.

Table 2. Descriptive Statistics for Sustainability Disclosure Scores by Sector and Reporting Year.

	SUST Score					
	N	Mean	SD	Min	P50	Max
By Sector:						
Financial	70	45%	25%	0%	57%	87%
Industrial Production	48	14%	14%	3%	9%	44%
Built Environment	34	32%	25%	0%	23%	67%
Strategic Infrastructure and Utilities	64	25%	21%	0%	27%	75%
Consumer and Social Services	30	41%	19%	7%	46%	89%
By Years:						
2023	39	37%	27%	0%	41%	89%
2022	41	33%	26%	0%	28%	85%
2021	42	32%	25%	0%	29%	84%
2020	42	32%	23%	0%	30%	76%
2019	41	29%	23%	0%	25%	76%
2018	41	28%	21%	0%	23%	65%

Table 3. Descriptive Statistics and Group Differences by Board Diversity (No vs. Yes).

	Board Diversity: NO (n = 146)					Board Diversity: YES (n = 100)					Chi-Square Test
	Mean	SD	Min	p50	Max	Mean	SD	Min	p50	Max	
Sustainability variables:											
SUST Score	21%	19%	0%	19%	61%	47%	23%	4%	48%	89%	Pr = 159.58 ***
ENV Score	16%	22%	0%	0%	72%	41%	25%	0%	44%	88%	Pr = 81.14 ***
SOCL Score	22%	22%	0%	20%	84%	55%	30%	0%	56%	96%	Pr = 135.86 ***
GOV Score	26%	19%	0%	24%	68%	45%	22%	8%	44%	92%	Pr = 109.47 ***
Corporate governance variables:											
OWN_CONCEN	84%	26%	8%	100%	100%	82%	28%	25%	100%	100%	Pr = 87.37 ***
CEO_DUAL	32%	47%	0%	0%	100%	0%	0%	0%	0%	0%	Pr = 39.80 ***
Financial variables:											
SIZE (in 1000 GEL)	244,288	327,491	8304	125,562	2,134,459	1,338,542	1,448,932	53,654	482,227	4,095,597	Pr = 246.00
PROF	3%	10%	−20%	4%	19%	3%	7%	−20%	3%	19%	Pr = 229.42
LEV	69%	47%	9%	63%	188%	64%	29%	9%	79%	107%	Pr = 234.52
Control variables:											
LENGTH	81	46	3	67	277	178	119	50	144	619	Pr = 166.09 **
LANG	25%	44%	0%	0%	100%	59%	49%	0%	100%	100%	Pr = 28.26 ***
AUDITOP	1.79	0.92	1.00	1.00	3.00	1.39	0.71	1.00	1.00	3.00	Pr = 13.54 ***

***, **, and * stand for significances at the 1%, 5%, and 10% significance levels (respectively) using two-tailed tests.

In terms of governance structure, the two groups differ significantly in CEO duality (CEO_DUAL), which is present in 32% of firms without board diversity but entirely absent among firms with diverse boards (Pr = 39.80, $p < 0.01$). Ownership concentration (OWN_CONCEN) remains high in both groups, with no substantive difference in the mean (84% vs. 82%), though the chi-square result suggests statistically significant variation in its distribution (Pr = 87.37, $p < 0.01$).

Financial characteristics show large disparities in firm size. Firms with board diversity are considerably larger, with an average size of GEL 1,338,542 thousand, compared to GEL 244,288 thousand for those without (Pr = 246.00). However, profitability (PROF) and leverage (LEV) do not show meaningful differences between the two groups; their chi-square results indicate statistical differences, yet means remain similar at around 3% for profitability and 64–69% for leverage.

Control variables also exhibit notable contrasts. Firms with board diversity publish significantly longer annual reports (mean LENGTH = 178 pages vs. 81 pages; $Pr = 166.09$, $p < 0.01$), and are more likely to issue reports in a foreign language (LANG = 59% vs. 25%; $Pr = 28.26$, $p < 0.01$). Finally, audit quality—measured by AUDITOP—is higher for firms with board diversity (mean = 1.39 vs. 1.79; lower values indicate higher-tier auditors), with the difference being statistically significant ($Pr = 13.54$, $p < 0.01$). These results suggest a strong positive association between board diversity and sustainability disclosure, firm size, external transparency practices, and audit quality.

Table 4 presents Pearson correlation coefficients among the key variables used in the multivariate analysis. The Sustainability Disclosure Score (SUST Score) exhibits several statistically significant associations with governance, financial, and reporting-related variables.

Table 4. Pearson Correlation Matrix (N = 246).

	1	2	3	4	5	6	7	8	9
SUST Score									
BOARD_DIVERS	0.529 ***								
OWN_CONCEN	0.096	−0.028							
CEO_DUAL	−0.355 ***	−0.402 ***	−0.131 **						
SIZE	0.674 ***	0.561 ***	0.313 ***	−0.339 ***					
PROF	−0.005	0.009	−0.118 *	0.192 ***	0.047				
LEV	0.121 *	−0.053	0.177 ***	−0.311 ***	0.046	−0.352 ***			
LENGTH	0.607 ***	0.547 ***	0.167 ***	−0.360 ***	0.665 ***	−0.020	0.224 ***		
LANG	0.221 ***	0.339 ***	0.163 **	−0.389 ***	0.369 ***	−0.021	0.122 *	0.567 ***	
AUDITOP	−0.342 ***	−0.227 ***	−0.303 ***	0.332 ***	−0.429 ***	0.018	0.051	−0.260 ***	−0.311 ***

***, **, and * stand for significances at the 1%, 5%, and 10% significance levels (respectively) using two-tailed tests.

Among corporate governance attributes, board diversity (BOARD_DIVERS) is strongly and positively associated with the SUST Score ($r = 0.529$, $p < 0.01$), indicating that diverse boards are linked to higher levels of sustainability disclosure. Conversely, CEO duality (CEO_DUAL) is negatively correlated with the SUST Score ($r = -0.355$, $p < 0.01$), suggesting that separation of CEO and board chair roles enhances disclosure practices.

Turning to financial characteristics, profitability (PROF) shows no significant correlation with the SUST Score ($r = -0.005$), implying that firms' financial performance does not necessarily influence their sustainability disclosure behavior. Leverage (LEV), on the other hand, displays a weak but statistically significant positive relationship with the SUST Score ($r = 0.121$, $p < 0.1$), while firm size (SIZE) remains the most influential financial variable ($r = 0.674$, $p < 0.01$), consistent with the idea that larger firms have more capacity and external pressure to report on sustainability.

Among reporting-related control variables, both report length (LENGTH) and reporting language (LANG) are positively correlated with sustainability disclosure ($r = 0.607$ and 0.221 , respectively; both $p < 0.01$), suggesting that more detailed and multilingual reports are aligned with enhanced transparency. In contrast, audit opinion score (AUDITOP) is negatively associated with the SUST Score ($r = -0.342$, $p < 0.01$), implying that firms with modified or lower-tier audit opinions tend to disclose less comprehensive sustainability information.

Further correlations reinforce the overall pattern. For example, board diversity is positively linked with firm size ($r = 0.561$), report length ($r = 0.547$), and bilingual reporting ($r = 0.339$), while CEO duality is negatively associated with all these dimensions.

No multicollinearity concerns are identified.

4.2. SEM Analysis

To estimate the effect of the pathways from board diversity to firm profitability, we employ a Structural Equation Model (SEM) that incorporates industry fixed effects by

including dummy variables for four industry groups (Financial; Industrial Production; Built Environment; and Strategic Infrastructure and Utilities) and one sector (Consumer and Social Services) serving as a reference group. This approach controls for systematic industry-level differences in profitability and sustainability disclosure.

The SEM includes a range of institutional, governance, and firm-level control variables. These comprise one lagged financial performance variable (LPROF), two corporate governance indicators (ownership concentration and CEO duality), two financial structure measures (firm size and leverage), and three disclosure-specific characteristics (report length, audit opinion, and reporting language).

SEM path model results are visualized in Figure 2, using a path diagram that integrates all major variables, including the control block. In the model, vector a represents the strong and statistically significant effect of Board Diversity on the SUST Score ($a = 0.563$, $p < 0.001$), indicating that more diverse boards are strongly associated with improved sustainability disclosure practices. Vector b captures the relationship between the SUST Score and firm profitability ($b = -0.024$, $p = 0.828$), and vector c measures the direct effect of Board Diversity on profitability ($c = 0.096$, $p = 0.332$). The mediated pathway ab yields an indirect effect of -0.013 , which is statistically non-significant across all estimation techniques (Delta, Sobel, and Monte Carlo; all $p > 0.82$). While the influence of Board Diversity on sustainability disclosure is robust and positive, neither a direct nor an indirect pathway to profitability emerges. This aligns with a no-effect nonmediation classification under Zhao et al. (2010), and fails to meet the criteria for mediation according to Baron and Kenny (1986).

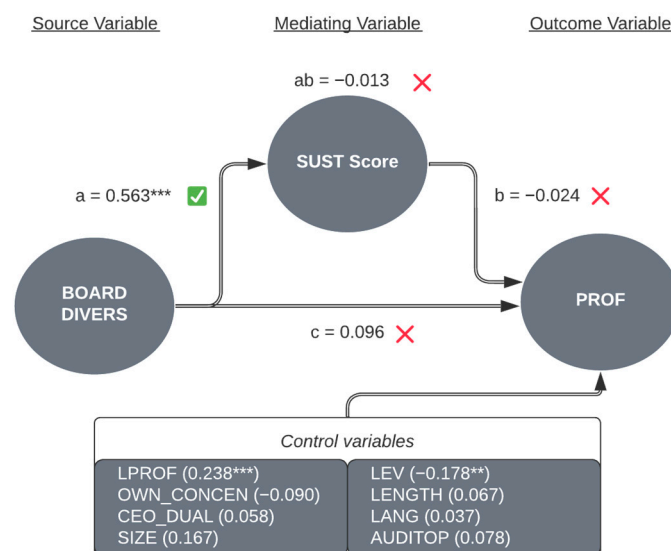


Figure 2. Structural Mediation Analysis of Board Diversity, Sustainability Disclosure, and Profitability (Source: authors' own). Note: ***, **, and * stand for significances at the 1%, 5%, and 10% significance levels (respectively) using two-tailed tests.

Control variables behave as expected: lagged profitability (LPROF) shows the strongest positive association with current profitability ($B = 0.238$, $p < 0.001$), and financial leverage (LEV) is significantly negative ($B = -0.178$, $p < 0.05$). Other governance and disclosure-related controls exhibit weaker and statistically insignificant associations.

The inclusion of lagged profitability also helps mitigate endogeneity: by controlling for the persistence of firm performance, it reduces reverse causality between current profitability and the explanatory variables. Diagnostic checks support this specification. In a separate forward regression, lagged board diversity and lagged sustainability disclosure do not significantly predict current profitability ($\beta = -0.007$, $p = 0.689$; $\beta = -0.028$, $p = 0.466$), consistent with our main null results, and the coefficients on board diversity and

disclosure remain stable and statistically insignificant across contemporaneous and lagged specifications, indicating that simultaneity is unlikely to be driving the findings.

In summary, the model confirms that board diversity enhances sustainability practices, but these do not translate into improved financial outcomes. The absence of a profitability response—despite greater sustainability transparency—may reflect a structural disconnection between sustainability signaling and market valuation in the studied institutional setting. It also suggests that in contexts with underdeveloped market mechanisms or weak enforcement, sustainability efforts may serve reputational or compliance purposes without yielding tangible financial returns.

Table 5 presents the standardized coefficients and proportions of indirect, direct, and total effects. While Board Diversity has a significant positive effect on the SUST Score (0.563, $p < 0.001$), its indirect effect on PROF through the SUST Score is small and statistically insignificant (indirect effect = -0.013 , $p = 0.828$), as confirmed by the Delta, Sobel, and Monte Carlo methods, all yielding identical estimates. Likewise, the direct path from SUST Score to PROF is not significant (-0.024 , $p = 0.828$), and neither is the total effect from Board Diversity to PROF (0.096, $p = 0.332$).

Table 5. Indirect-to-Total and Indirect-to-Direct Effect Ratios.

	Coef.	Std. Err.	z	P > z	[95% Conf. Interval]	Indirect Effect/Total Effect	Indirect Effect/Direct Effect
Through SUST_Score:							
Delta	−0.013	0.061	−0.217	0.828	[−0.133; 0.107]	(0.013/0.109) = 0.121	(0.013/0.096) = 0.138
Sobel	−0.013	0.061	−0.217	0.828	[−0.133; 0.107]		
Monte Carlo	−0.013	0.061	−0.212	0.832	[−0.134; 0.093]		

These results jointly confirm the absence of a mediating mechanism. According to the Baron and Kenny (1986) framework, mediation is ruled out because the condition for a significant effect from the mediator (SUST Score) to the outcome (PROF) is not satisfied. Similarly, based on Zhao et al.'s (2010) taxonomy, this constitutes a case of no-effect nonmediation.

Despite the lack of significance, the relative size of the indirect effect is modest. The ratio of indirect-to-total effect (RIT) equals 0.121, and the indirect-to-direct effect ratio (RID) equals 0.138. However, these ratios are of limited interpretive value given that the underlying paths are statistically insignificant. As illustrated in Figure 2, the only significant association is between Board Diversity and SUST Score, while the connections to PROF are not supported.

In sum, while Board Diversity enhances sustainability practices, these improvements do not appear to influence firm profitability. This finding suggests that in the studied context, sustainability initiatives may lack economic salience or fail to translate into measurable financial gains, potentially due to weak market responsiveness or underdeveloped institutional valuation of sustainability performance.

Building on the mediation analysis, which showed that board diversity significantly influences overall sustainability disclosure (SUST Score) but not firm profitability, Table 6 provides a deeper investigation into the robustness and nature of this relationship. The analysis includes multiple regression specifications: OLS, robust standard errors, heteroskedastic-consistent regression (Hetreg), sector and year fixed effects, and regressions split across the three ESG pillars (ENV, SOCL, GOV).

The models explain a substantial portion of variation in sustainability disclosure, with R^2 values ranging from 0.52 to 0.63 depending on the specification. Adjusted R^2 values

confirm solid explanatory power (0.51 to 0.61), and F-statistics are highly significant across all models, supporting the joint relevance of included predictors.

Table 6. Determinants of Sustainability Disclosure: Robustness Across Models, Fixed Effects, and ESG Pillars.

	Regression Type			Fixed Effects		ESG Pillars		
	OLS (1)	Robust (2)	Hetreg (3)	Sector FE (4)	Year FE (5)	ENV (6)	SOCL (7)	GOV (8)
Variable of Interest:								
BOARD_DIVERS	0.06 ** (2.20)	0.06 ** (2.15)	0.07 ** (2.48)	0.03 (1.01)	0.06 ** (2.16)	0.01 (0.28)	0.14 *** (3.54)	0.04 (1.51)
Corporate Governance Variables:								
OWN_CONCEN	−0.10 ** (−2.41)	−0.09 ** (−2.06)	−0.07 * (−1.67)	−0.12 *** (−3.06)	−0.10 ** (−2.37)	−0.13 *** (−3.03)	−0.17 *** (−3.04)	0.01 (0.22)
CEO_DUAL	−0.05 (−1.57)	−0.07 ** (−2.05)	−0.06 * (−1.80)	−0.05 (−1.37)	−0.05 (−1.54)	−0.14 *** (−3.65)	−0.03 (−0.92)	0.02 (0.58)
Financial Variables:								
SIZE	0.06 *** (6.31)	0.06 *** (5.78)	0.06 *** (5.93)	0.06 *** (6.85)	0.06 *** (6.26)	0.09 *** (8.26)	0.06 *** (5.00)	0.04 *** (2.99)
LEV	0.04 (1.35)	0.03 (0.92)	0.03 (0.97)	0.05 ** (2.21)	0.04 (1.41)	−0.08 *** (−2.77)	0.14 *** (3.70)	0.05 * (1.86)
Other Control Variables:								
LENGTH	0.12 *** (4.87)	0.12 *** (4.54)	0.12 *** (4.61)	0.12 *** (4.64)	0.12 *** (4.69)	0.10 *** (3.41)	0.14 *** (4.60)	0.12 *** (4.90)
LANG	−0.11 *** (−4.16)	−0.10 *** (−3.66)	−0.12 *** (−4.38)	−0.13 *** (−5.04)	−0.11 *** (−4.24)	−0.13 *** (−4.07)	−0.15 *** (−4.31)	−0.05 * (−1.71)
AUDITOP	−0.04 *** (−2.65)	−0.03 ** (−2.27)	−0.04 *** (−2.65)	−0.05 *** (−2.75)	−0.04 *** (−2.69)	−0.01 (−0.62)	−0.05 *** (−2.78)	−0.05 *** (−3.53)
R ²	0.57	0.55		0.63	0.57	0.52	0.54	0.44
R ² adj.	0.55	0.54		0.61	0.55	0.51	0.53	0.42
F-stat	52.02 ***	36.75 ***		57.63 ***	32.24 ***	40.65 ***	44.13 ***	25.92 ***

Notes: Column (1) reports the baseline pooled OLS specification. Column (2) re-estimates the baseline using robust regression (reg), which down-weights influential observations to mitigate the effect of outliers. Column (3) applies a heteroskedasticity-adjusted regression (hetreg) that models the error variance as a function of the regressors; its variance-equation parameters are omitted for brevity, and R² statistics are not reported because they are not defined for this estimator. Columns (4) and (5) augment the baseline with sector and year fixed effects, respectively, to absorb time-invariant industry characteristics and common temporal shocks. Columns (6) to (8) decompose the aggregate disclosure index into its ESG pillars to identify which dimension drives the baseline result. t-statistics in parentheses. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively (two-tailed).

Board diversity is consistently and significantly associated with higher overall sustainability disclosure in the baseline models (OLS = 0.06, $p < 0.05$; robust = 0.06, $p < 0.05$; Hetreg = 0.07, $p < 0.05$). The relationship remains robust when controlling for time fixed effects ($p < 0.05$), but becomes statistically insignificant when controlling for industry fixed effects ($p = 0.31$). This may be attributed to low within-sector variation in board composition in Georgia's relatively concentrated and structurally similar industries, whereas variations over time are more meaningful—possibly reflecting temporal shifts in regulation, public awareness, or external pressures.

To further address endogeneity arising from unobserved firm-level heterogeneity, we re-estimated the disclosure equation using firm fixed effects, the specification favoured by a Hausman test ($\chi^2(7) = 15.75$, $p = 0.028$). The positive association between board diversity and sustainability disclosure remains highly significant under this specification ($\beta = 0.16$, $p < 0.001$) and is slightly larger than in the random-effects estimation. Given that 84% of the residual variance is attributable to between-firm differences ($\rho = 0.84$), this represents a demanding test for a predominantly cross-firm characteristic, and the persistence of the effect indicates that it is not driven by time-invariant firm-level confounders. We note, however, that this procedure does not eliminate all sources of endogeneity, and we therefore interpret our results as associations rather than as strictly causal relationships.

Firm size (SIZE) is positively and strongly related to all sustainability dimensions ($p < 0.01$ throughout), consistent with prior literature indicating that larger firms have more resources and are under greater scrutiny. Leverage (LEV) has a weak or insignificant effect in general but exhibits a significant negative effect on ENV (-0.08 , $p < 0.01$) and a positive effect on SOCL (0.14 , $p < 0.01$), possibly indicating that indebted firms prioritize visible social responsibility to maintain legitimacy but are financially constrained from engaging in environmental action.

Report length (LENGTH) is highly significant and positively related to all sustainability outcomes, reflecting that more comprehensive reporting often includes greater ESG detail. Foreign language disclosure (LANG) has a consistently negative effect ($p < 0.01$), suggesting that issuing reports in a foreign language may reflect formality rather than substantive ESG commitment, or may relate to cost/resource constraints. Audit quality (AUDITOP) is negatively associated with the SUST Score, especially in SOCL and GOV dimensions, which may suggest that higher audit scrutiny exposes deficiencies or discourages over-reporting.

4.3. Alternative Profitability Measures

Firm profitability in our main analysis is proxied by return on assets, an accrual-based measure. To assess whether our findings are sensitive to this choice, we re-estimate the profitability equation using three alternative constructs: return on equity (ROE), profit margin, and operating cash flow scaled by total assets (CFO/ASS). For parsimony, these robustness tests are estimated by OLS with robust standard errors, as the question at issue concerns the sensitivity of the profitability measure rather than the mediation structure. Results are reported in Table 7. Board diversity remains statistically insignificant for ROA ($B = -0.018$) and profit margin ($B = -0.020$). For ROE the coefficient is negative and marginally significant ($B = -0.129$, $p < 0.10$), and for CFO/ASS it is negative and significant ($B = -0.066$, $p < 0.01$). The latter association is attenuated but persists when financial firms are excluded ($B = -0.040$, $p < 0.10$, $N = 116$), indicating that it is not driven solely by the financial sector, which accounts for a significant share of board-diverse firm-years in our sample. In no specification does board diversity exhibit a positive association with firm profitability. The rejection of H3 is therefore not an artifact of the accrual-based measurement adopted in the main analysis. The path from sustainability disclosure to profitability remains insignificant throughout, consistent with the no-effect nonmediation reported in Section 4.2.

The divergence between the accrual-based and cash-based measures is arithmetic in origin. Return on assets decomposes into operating cash flow and total accruals, both scaled by total assets. Column (5) shows that board diversity is positively associated with the accrual component ($B = 0.051$, $p < 0.10$), offsetting the negative cash-flow association within ROA. We do not interpret this pattern as evidence of accrual management.

Table 7. Board Diversity and Alternative Profitability Measures.

	(1) ROA	(2) ROE	(3) Margin	(4) CFO/ASS	(5) Accruals
Board Diversity	−0.018 (0.020)	−0.129 * (0.068)	−0.020 (0.071)	−0.066 *** (0.021)	0.051 * (0.028)
SUST Score	−0.018 (0.043)	−0.082 (0.131)	−0.107 (0.158)	0.004 (0.039)	−0.052 (0.052)
Controls	Yes	Yes	Yes	Yes	Yes
Sector FE	Yes	Yes	Yes	Yes	Yes

Table 7. Cont.

	(1) ROA	(2) ROE	(3) Margin	(4) CFO/ASS	(5) Accruals
N	162	144	162	162	162
Adj. R ²	0.077	0.277	0.155	0.411	0.180

Notes: This table reports OLS estimates of the profitability equation using alternative dependent variables. ROA is net income scaled by total assets; ROE is net income scaled by book equity; Margin is net income scaled by revenue; CFO/ASS is operating cash flow scaled by total assets; Accruals is net income less operating cash flow, scaled by total assets. All dependent variables are Winsorised at the 5% level. Column (2) is restricted to firm-years with positive book equity, as ROE is undefined or sign-reversed otherwise. Controls comprise the lagged dependent variable, ownership concentration, CEO duality, firm size, leverage, report length, reporting language, and audit opinion. Sector fixed effects are included in all specifications. The sample of 162 firm-years reflects the exclusion of each firm's first two observation years, required to construct the lagged dependent variable. Robust standard errors are reported in parentheses. ***, **, and * stand for significances at the 1%, 5%, and 10% significance levels (respectively) using two-tailed tests.

5. Discussion

This study uncovers a crucial inquiry—the linkage between board diversity including gender representation, nationality, and number of members, sustainability disclosure, and firm profitability. Given that stakeholders' concerns involve environmental, social and governance aspects along with financial interests, companies can increase their values in the market by taking sustainability actions (Kahloul et al., 2022). Unlike prior studies exploring the effect of board diversity on only one dimension of sustainability—environmental sustainability performance (Valls Martínez et al., 2022; Khatri, 2024), this research undertakes a broader perspective by investigating environmental, social, and governance dimensions of sustainability performance.

While current studies primarily deal with gender diversity and environmental performance of a firm in developed economies, this research contributes to the theory by exploring the link between board diversity including gender, ethnicity, and number of board members and ESG performance in the developing country's context. Our findings are consistent with previous research argued that board diversity positively affects sustainability performance (e.g., Kyaw et al., 2022; Khatri, 2024).

This study enhances the debates regarding the nexus between board diversity and sustainability disclosure, while supporting stakeholder theory. Board diversity brings diverse perspectives from individuals with different backgrounds, experiences, and viewpoints, which can lead to more innovative and creative solutions to sustainability challenges, as well as a better understanding of the needs and concerns of various stakeholders (Lee et al., 2024). However, while prior literature in mature markets suggests that signaling board diversity automatically enhances firm reputation, thereby attracting socially conscious investors, customers, and employees (Pandey et al., 2023), our empirical context challenges this direct transmission mechanism. In developing or post-Soviet economies, board diversity creates better grounds to identify and address potential risks, including environmental, social, and governance issues, but this ethical optimization operates independently of financial market dynamics. Consequently, companies can avoid costly mistakes and improve their non-financial sustainability performance, establishing legitimacy rather than immediate financial returns.

Our findings illustrate that board diversity significantly impacts sustainability disclosure, hence H1 is accepted. This result is in agreement with previous studies (Khatri, 2023, 2024; Bannò et al., 2023; Martínez-Ferrero et al., 2021), and further offers empirical evidence on the influence of board diversity on sustainability disclosure. Accordingly, the assumption that board diversity positively impacts on sustainability disclosure of firms is both expected and evidence based.

Our research identifies no significant impact of board diversity on firm profitability, rejecting H3, and nonsignificant effect of sustainability disclosure on firm profitability, rejecting H2. This conclusion is robust to alternative profitability measures. Estimations using equity-based, margin-based, and cash-flow-based constructs yield no positive association between board diversity and firm profitability. These results are in harmony with prior research (Barnett & Salomon, 2006; Brammer & Pavelin, 2008; Omenihu et al., 2025), but contradict Kabir et al. (2023), and Alodat et al. (2023), who argued that board gender diversity boosts firm performance. Contrary to the findings of previous researchers (Alodat & Hao, 2025; Alodat et al., 2024), our results indicate that sustainability disclosure has no influence on firm profitability. These outcomes suggest that the assumed straightforward relationship between sustainability disclosure and corporate financial success might be overly simplistic (Tsang et al., 2023; Gu et al., 2024). Finally, the mediating role of sustainability disclosure is not supported, rejecting H4. Since the path from sustainability disclosure to firm profitability is itself insignificant, the condition for mediation under the Baron and Kenny (1986) framework is not satisfied, and the indirect effect of board diversity on profitability through disclosure is statistically indistinguishable from zero. This constitutes a case of no-effect nonmediation: board diversity shapes what firms disclose, but neither the disclosure itself nor the diversity of the board translates into measurable profitability gains in this setting.

Furthermore, the critical mass theory explains the share of women directors on boards to achieve significant influence on decisions (Amadi et al., 2023; Omenihu et al., 2025). Critical mass explains that women should constitute a sufficient number on the board in order to have a voice and to influence the board decision, otherwise, female directors have no effect. Accordingly, female representatives of boards impact a firm's sustainability practices but there are more variables influencing corporate profitability. Additionally, board diversity and sustainability disclosure may not necessarily translate directly into improved profitability of a company. Focusing on sustainability issues enhances ethical standards and corporate responsible behaviour, leading to long-term success; it is distinguished from financial profitability. Further, investments in sustainability require time before they generate financial returns through improved reputation, operational efficiencies, stakeholder trust, or innovation. Accordingly, benefits of sustainability practices can accumulate gradually rather than immediately (Eccles et al., 2014). Similarly, board diversity improves decision-making and governance but these indirect benefits may require time before affecting financial performance (Post & Byron, 2015). In addition, financial benefits may depend on the credibility, quality, and strategic integration of sustainability reporting (Cho et al., 2015).

Moreover, the research results can be explained by the country context, as institutional frameworks and the regulatory environment shape the relationship between board diversity, sustainability disclosure, and firm profitability (Omenihu et al., 2025). Specifically, limited market demand for sustainability disclosure results in companies making less effort to achieve sustainability performance, especially in Georgia with underdeveloped capital markets, as investors and creditors are reluctant to incorporate sustainability issues into decision-making processes. Further, the concept of green investment remains underdeveloped in Georgia, largely due to the limited maturity of the capital market. There is a lack of investor demand and insufficient recognition of the potential benefits associated with environmental, social, and governance (ESG) practices. As a result, companies are often only motivated to meet the minimum legal requirements, with ESG-related advantages largely invisible in the current market environment. Additionally, voluntary engagement with ESG standards remains low, as firms perceive little incentive without external pressure.

In the absence of comprehensive regulation and market-based incentives, companies are unlikely to adopt ESG practices beyond what is strictly mandated.

The results of this research show that Georgian companies still disclose less information about sustainability issues. This could be due to a reluctance to disclose potentially negative information that could harm the company's financial standing (Dhar et al., 2024). Board diversity, in terms of gender, nationality, and number of representatives, significantly affects General and Social dimensions. Among the ESG pillars, social issues received the highest score, while environmental issues had the lowest score. Sustainability issues, such as climate change are not mentioned in the reports of most Georgian companies. This result is consistent with recent literature that posits that national cultural context is vital in understanding the effect of women representation in boards on sustainability performance. It has been argued that in cultures with a strong humane orientation, female directors are likely to prioritize corporate social issues over environmental concerns. For example, Alazzani et al. (2017) find a significant positive relationship between the social performance of Malaysian firms and the presence of female directors on their boards. However, there is no significant link found between environmental performance and female board representation.

Moreover, studies in emerging economies suggest that companies in developing contexts, despite board gender diversities, often struggle to address both social and environmental dimensions of sustainability (Ching & Gerab, 2017; Muller & Kolk, 2009). Limited resources and the costs of sustainability reporting force firms in emerging economies to choose between these two aspects. Consequently, the social component receives more attention due to a greater public awareness and interest. This is in contrast to the relatively abstract and remote perspectives on climate change. Social dimension in developing countries is related to basic human needs, and environmental protection gains visibility only after that (Belal et al., 2015).

The research results display that, within governance issues, Georgian companies disclose information related to anti-corruption and bribery, customer relations and internal control mechanisms, but tend to avoid reporting about political engagement and lobbying. Our findings indicate important differences among industries in line with previous studies (Yusoff & Adamu, 2016; Kim et al., 2019; Song et al., 2020). The financial sector demonstrates better sustainability performance due to pressure for disclosure, regulations, and experience in reporting. The construction and real estate sector results better in environmental issues due to regulations.

Moreover, this research exhibited that control variables such as ownership concentration and CEO duality negatively influence sustainability scores, echoing the results of Omenihu et al. (2025). Prior studies also illustrated that ownership concentration (when a shareholder owns more than 20% of shares) is regarded as a barrier to sustainability reporting (Hahn & Kühnen, 2013). Conversely, dispersed ownership leads to the need for information and reporting. It is worth mentioning that ownership structure (as well as country and region contexts) determines board diversity (Iwasaki et al., 2024).

The results confirm that company size plays a favourable role in sustainability performance as large companies manifest better sustainability results as expected from legitimacy theory and previous studies (Tibiletti et al., 2021; de Villiers et al., 2014; Omenihu et al., 2025). Moreover, higher levels of financial leverage leads to disclosing a more sustainability data. This finding is in harmony with prior research (e.g., Akhtar et al., 2022). Interestingly, our findings argue that report language negatively affects sustainability score suggesting that companies providing reports in multiple languages, disclose less sustainability information. Future studies are required in this regard to explore the association thoroughly.

6. Conclusions

This research extends the existing literature by exploring the connection between board diversity, sustainability disclosure and firm profitability by analysing the data of Georgian listed companies from 2018 to 2023. In harmony with [Amadi et al. \(2023\)](#), [Kahloul et al. \(2022\)](#), [Kabir et al. \(2023\)](#) and [Beji et al. \(2021\)](#), the results encourage firms to increase board diversity and enhance sustainability outcomes. The results highlight a lower level of sustainability disclosure practice in Georgia compared to developed countries. The Georgian publicly admitted companies devote more attention to the social dimension of sustainability followed by governance issues, and the environmental dimension received the lowest score. The highest score in board diversity is registered among companies operating in the financial sector. This result indicates again compliance with legal requirements and presents a response to the increasing demand for disclosure towards financial organizations in Georgia. In addition, companies in the construction and real estate sector show higher scores in the environmental dimension contrary to other sectors, as they have to conform to regulations in this area. The research results confirm that board diversity leads to a higher score in sustainability, as companies with diverse boards demonstrate better sustainability disclosure compared to companies without board diversity.

6.1. Implications

The results contribute to the ongoing debate about the relationship between gender diversity, firm profitability and sustainability disclosure, with an emphasis on the developing country. Since previous studies found mixed and inconsistent results related to the studied relationships, this research is important for addressing the gap and adding value to the relevant literature, especially in the context of emerging markets. Given that developing countries are more vulnerable due to corporate activities neglecting their social and environmental impacts, our results suggest the strategic role of boardroom diversity and its principal implications on sustainability practices. The findings imply that firms can enhance sustainability practices through improved boardroom diversity. This result affects corporate leaders, regulators, investors, decision-makers, and stakeholders who are concerned about the sustainability issues. The research informs them about the potential benefits and drawbacks of having diverse board. In this regard, this study portrays the urgent need for implementing sustainability initiatives in companies to achieve a more responsible corporate environment ([Jaganjac et al., 2024](#)).

Company leaders and decision-makers should improve the corporate sustainability environment in developing countries such as Georgia. Local regulators, taking into account the research results, should elaborate relevant regulations that provide incentives for enhanced sustainability practices and sustainability disclosure. Regulatory authorities should consider targeted initiatives to improve board diversity and hence, improve sustainability disclosure practices. Specifically, because our structural equation modeling confirms a ‘no-effect nonmediation’ pattern—meaning that the market currently fails to financially reward non-financial transparency, regulatory authorities cannot rely solely on disclosure mandates to drive corporate change. For regulatory bodies and international institutions evaluating Georgia’s EU candidacy status, these findings indicate that the Law of Georgia on Accounting, Reporting, and Auditing must be coupled with tangible economic incentives. Regulators should consider targeted initiatives, such as introducing green tax credits, preferential interest rates for high-ESG listed firms, or specific green bond frameworks. These market-based mechanisms are essential to bridge the current gap between compliance and profitability, explicitly demonstrating to corporate boards that sustainability yields structural advantages even in nascent capital markets.

Sustainability performance in emerging economies like Georgia is significant not only for attracting investors or increasing the financial profitability of companies but perhaps most importantly, for promoting sustainability practices, protecting the environment and contributing to the economic and social development of the country (Gigauri et al., 2024). However, greater efforts are needed to encourage companies to engage in sustainability activities and disclose ESG information.

Since less-developed economies are characterized by underdeclared capital markets and biased media attention, effective enforcement and compliance regulations are required (Pirveli, 2025). This will lead companies to take responsibility voluntarily rather than solely meeting the basic requirements. Furthermore, corporate governance structures are vital for enhancing sustainability disclosure and firm performance, thereby fostering trust in the capital market (Pirveli, 2025) and developing relationships with consumers and other stakeholders.

This research contributes to the existing literature by adding nationality to board diversity research echoing a gap in the relevant literature that scholars devote more attention to gender diversity while neglecting other factors, such as ethnicity, age, nationality, education, and other demographic characteristics (Khatib et al., 2023). In this regard, our research extends critical mass theory by incorporating other characteristics of board diversity as opposed to previous studies analyzing gender diversity in light of this theory.

We examined how sustainability (ESG) disclosure mediates the relationship between board diversity and firm profitability in the developing market of Georgia and found that the association between board diversity and firm profitability is weaker. Although contradicting stakeholder theory, this relationship can be affected by various variables such as sustainability committees, number of board meetings, board skills, board independence, industry type, as well as external governance mechanisms (Xu et al., 2025; Al-Qahtani & Elgharbawy, 2020; Alodat & Hao, 2025), which needs to be further explored.

The results of this research reinforce agency theory by providing support that board independence improves monitoring and control leading to better firm performance. Ownership concentration and CEO duality negatively impact sustainability performance weakening the relationship between ESG disclosure and firm profitability. The dual role of the CEO may impede governance structures from implementing strict ESG and reporting standards, which hinders transparency and sustainability performance (Omenihu et al., 2025). Consequently, our findings offer highly actionable implications for corporate restructuring in emerging markets: merely adding diverse or female directors to the board is structurally ineffective if power remains concentrated in a single blockholder or if the CEO dominates the boardroom. To unlock the transparent potential of a diverse board, firms must actively decouple the CEO and Chairperson roles and establish independent governance sub-committees to reduce information asymmetry and mitigate agency costs.

Furthermore, our analysis yields a unique practical implication regarding the negative impact of report language on sustainability scores. This finding uncovers what can be defined as a ‘formal compliance trap’. Companies that provide reports in multiple languages appear to disclose statistically less granular and substantive sustainability information. This implies that multilingual reporting in developing nations is frequently utilized as a cosmetic international public relations facade. Auditors, rating agencies, and international stakeholders must therefore look past the international framing of English-language reports and rigorously scrutinize the internal quality and granularity of local ESG metrics to ensure they represent genuine sustainable commitments rather than symbolic international signaling.

In addition, Baker et al. (2020) underlined that the lack of data availability in developing countries impedes research in this field, while studies on board diversity in developing

nations are important to understand the phenomenon, taking into account that those countries face different problems in their efforts to achieve board diversity. The present study contributes to the existing literature on corporate sustainability showcasing conflicting demands of business and sustainability (Tapaninaho, 2024). Furthermore, our research paves the way for future studies to investigate the topic based on our findings. Thus, this research will also benefit researchers in evaluating the literature related to sustainability performance and board diversity and develop further studies.

6.2. Research Limitations and Future Research Directions

This research explores one country case but despite this limitation the results are still essential. Since the study is based on firms from a single developing country, the institutional, regulatory, and economic characteristics of this context may differ from those of other countries. Consequently, the findings should be interpreted with caution when extending them to different settings, although similar patterns may exist in other emerging economies.

Furthermore, the relatively small sample size may limit the statistical power of the analysis and the generalizability of the results. Moreover, we used self-reported data which, despite external validity by independent auditors, may contain incomplete information. A further limitation concerns endogeneity: although we mitigate it by including lagged profitability and by estimating the disclosure equation with firm fixed effects, we cannot fully rule out residual endogeneity, since board diversity and sustainability disclosure may be jointly determined with firm performance or correlated with unobserved firm characteristics. In the absence of strong instruments for our setting, we do not employ instrumental-variable or dynamic panel estimators, and our findings should therefore be read as associations rather than as evidence of causal effects.

Further, there can be other variables that can mediate or moderate sustainability (ESG) disclosure and firm profitability, which were not considered in this study. Therefore, future studies can deepen this research by adding more variables to the complex relationship between boardroom diversity, sustainability disclosure and firm profitability. In this connection, sustainability performance can be divided into social, environmental and governance dimensions including more proxy variables for each category and investigate separately their individual association with firm performance and board diversity.

Furthermore, focusing on cognitive diversity such as personality, education, experience, and perception of board members can provide rich insights and encourage managers to decide on more diverse boards. We proxy board diversity with a single composite indicator rather than with separate measures for board size, nationality, and gender. While this is dictated by data availability and is consistent with our theoretical focus on overall board diversity, it does not allow us to isolate which specific dimension drives the observed associations. Future research with access to more granular, consistently reported board-composition data could disaggregate these dimensions and examine their individual effects. Similarly, future studies can focus on the relationship between corporate governance, ownership concentration, and sustainability performance. In addition, future research in multiple countries in various regions and diverse industries, and by incorporating additional profitability measures, will enhance the research topic, and could pursue causal identification directly through suitable instruments.

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Abbreviations

The following abbreviations are used in this manuscript:

BARTA	Best Annual Reporting and Transparency Award in Georgia
CEO	Chief Executive Officer
CSR	Corporate Social Responsibility
ESG	Environmental, Social, and Governance
EU	European Union
GRI	Global Reporting Initiative
OLS	Ordinary Least Squares
SARAS	Service for Accounting, Reporting and Auditing Supervision
SDGs	Sustainable Development Goals
SEM	Structural Equation Modeling
UN	United Nations

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