

ISSN 2090-3359 (Print)  
ISSN 2090-3367 (Online)



# Advances in Decision Sciences

*Volume 29*  
*Issue 4*  
*December 2025*

Michael McAleer (Editor-in-Chief)

Chia-Lin Chang (Senior Co-Editor-in-Chief)

Alan Wing-Keung Wong (Senior Co-Editor-in-Chief and Managing Editor)

Aviral Kumar Tiwari (Co-Editor-in-Chief)

Montgomery Van Wart (Associate Editor-in-Chief)

Vincent Shin-Hung Pan (Managing Editor)



**亞洲大學**  
ASIA UNIVERSITY



**SCIENTIFIC &  
BUSINESS  
WORLD**

Published by Asia University, Taiwan and Scientific and Business World

# **Role of ESG Disclosure in Determining Earnings Management of GCC Firms: Moderating Role of Corporate Board Diversity**

**Laila Maswadi**

Department of Accounting and Finance,  
College of Business, Jazan University, Jazan, Saudi Arabia.

**Email:** [Lmaswadi@jazanu.edu.sa](mailto:Lmaswadi@jazanu.edu.sa)

ORCID: 0000-0003-3859-9103

**Muzammal Ilyas Sindhu**

Department of Accounting and Finance,  
Bahria University Islamabad, Pakistan

*\*Corresponding author* **Email:** [muzammal496@gmail.com](mailto:muzammal496@gmail.com)

ORCID: 0000-0002-7516-0928

**Ruby Khan**

Department of Accounting and Finance,  
College of Business, Jazan University, Jazan, Saudi Arabia.

**Email:** [ruby\\_khan123@yahoo.co.in](mailto:ruby_khan123@yahoo.co.in)

ORCID: 0000-0002-9218-5430

**Ameera Hakami**

Department of Accounting and Finance,  
College of Business, Jazan University, Jazan, Saudi Arabia.

**Email:** [Ameerh08@hotmail.com](mailto:Ameerh08@hotmail.com)

Received: August 25, 2025; First Revision: November 21, 2025;

Last Revision: December 28, 2025; Accepted: December 29, 2025;

**Published: December 30, 2025**

## **Abstract**

**Purpose** - Drawing on the stakeholder theory and legitimacy theory, this study aimed to examine the impact of ESG disclosure on earnings management with the moderating influence of board diversity.

**Design/methodology/approach** – This study employed the random GLS regression and moderation analysis to investigate the relationships. To investigate the aforementioned relationship, panel data for 91 firms from six countries of the GCC region were collected from DataStream.

**Findings** – Key findings posit a significant and positive association with ESG, its components, including environmental, social, and governance factors. Furthermore, there is a negative association with board diversity. Moreover, the remaining relationships were also found in light of theoretical assumptions and shown with optimal levels. In addition, the random GLS regression demonstrated a significant and positive relationship with ESG and earnings management. Our findings enable stakeholders to assess corporate ESS performance to determine the information asymmetry and make optimal asset allocation decisions.

**Practical/Social Implications** – Investors and regulators need to critically observe the firms in the GCC region, as ESG disclosures in emerging markets may not inherently signal reduced opportunism. However, firms with diverse boards provide stronger assurance of authentic ESG engagement, reducing information risk and enhancing the credibility of financial reporting. Our study results imply that regulators must ensure that corporations protect the public interest by providing reliable information to make informed decisions.

**Originality/value** – This study contributed to existing literature by uncovering the paradoxical role of ESG in facilitating earnings management in emerging markets and validating stakeholder theory through the moderating effect of board diversity. Our findings remain novel in determining that ESG measures can be used to determine the information asymmetry in emerging markets, thereby enabling GCC investors and regulators to focus on more stringent ESG disclosure and regulations.

**Keywords:** Environmental social governance (ESG), Board Diversity, Earnings management, GLS regression

**JEL Classifications:** G34, M40, Q56, C33

# 1 Introduction

The rising environmental activism worldwide has forced companies to comply with the regulations relevant to environmental, social, and governance (ESG) disclosure. This surge implies that companies respond to rising concerns of their stakeholder relevant to environmental preservation and sustainability (Abdelbaky et al., 2024; Adeneye et al., 2024). Consequently, the contemporary business environment integrates the elements of environmental, social, and governance (ESG) to foster sustainability (Cui et al., 2025; Lestari & Muthmainnah, 2025). Companies that integrate ESG practices into their corporate and business strategies are perceived to be aligned with the sustainability motives of their stakeholders (Li et al., 2025; Mao et al., 2024). The surge of ESG is a global movement endorsed by regulatory intervention and stakeholder pressure, combined with nonfinancial performance and social accountability, with board governance standards (Petcharat et al., 2025; Sabirali et al., 2025). The last decade witnessed the expanded adoption of ESG metrics due to investor activism about social accountability and environmental performance (Saleh et al., 2025). In the modern world, the stakeholders' perspective has been transformed from conventional to sustainable business models. The tendency emphasized the inclusion of ESG as a mandatory element and a necessary fragment for financial performance (Sun et al., 2024). Moreover, it remained crucial for the financial success of organizations (Velte, 2019).

In the past few studies, the outperforming role of firms having an ESG outlook has been highlighted over those without an ESG outlook (Mao et al., 2024; Petcharat et al., 2025). In response to these developments, ESG frameworks and reporting protocols have emerged worldwide (Sun et al., 2024). As ESG regulations evolve and reshape capital markets, companies that strategically innovate based on these principles are expected to achieve competitive advantages, enhanced access to capital, and greater resilience against developing global issues like climate change, social inequality, and governance failures (Abdelbaky et al., 2024; Cui et al., 2025). These developments in the context of the ESG landscape have raised the need for ESG disclosure by regulators to require companies to disclose their ESG performance along with financial disclosure.

The ESG disclosure, also known as nonfinancial information disclosure, has received considerable interest from stakeholders who not only consider financial information but also consider the ESG performance of firms while making investment decisions. The ESG disclosure has also attained widespread recognition due to its implications for building a strong corporate reputation. The organization with a strong ESG outlook is attributed to trustworthy and attain stakeholder (investors, customers, employees) trust as compared to firms with marginalized ESG performance. Therefore, all public firms voluntarily and regularly disclose their ESG reports along with financial information. Additionally, most countries and regions have enforced mandatory ESG disclosure regulations. These mandatory ESG regulations require companies to disclose their ESG-related information in a standardized format, so that users of financial information can make informed investment decisions. This paradigm shift has also started the trend of socially responsible investment (SRI), and most countries have started their own socially responsible index that measures the performance of companies that embrace ESG regulations. Past studies posit that companies that follow mandatory ESG disclosure have a substantial impact on investors' trust and are able

to get the low cost of equity financing compared to their competitors, who only comply with the disclosure requirements of financial information. However, these regulations are not mandatory across industries and countries. For instance, European and various other developed economies have mandatory ESG disclosure; however, most of the developing and emerging economies still have discretionary disclosure. Past studies provide ample evidence regarding the comparative effect of mandatory and discretionary ESG disclosure on firm performance (Li et al., 2025; Mao et al., 2024), cost of equity (Petcharat et al., 2025; Velte, 2019), and quality of financial disclosure (Abdelbaky et al., 2024; Saleh et al., 2025). However, there is an evolving stream of literature that remains devoted to examining the potential role of ESG disclosure in combating the earnings management behavior of companies. The earnings management behavior of the firm undermines the public interest and remains decisive in affecting the shareholder interest.

The earnings management behavior of firms reflects their tendency to manipulate financial statements to meet certain economic interests, which continues to challenge the transparency of financial reporting. However, past studies posit that robust ESG disclosure has the potential to serve as a deterrent to the earnings management behavior of firms by promoting transparency and integrity (Abdelbaky et al., 2024; Lestari & Muthmainnah, 2025; Mao et al., 2024). Such transparency would not only reduce the likelihood of manipulating financial information but also help protect the rights of shareholders. As the earnings management essentially undermines the quality of information, and by using it, investors may face negative investment outcomes (Li et al., 2025; Velte, 2019). Accordingly, such behavior often results in a corporate scandal that undermines the public interest. The protection of public interest remains the sole responsibility of regulators, who encourage companies to establish policies and procedures that supervise such unethical behavior of firms (Petcharat et al., 2025). One such mandatory mechanism requisite for public companies is known as corporate governance. Corporate governance signifies the mechanism to control and guide the management to achieve its vision, and also ensure that management decision-making remains in the best interest of shareholders (Sun et al., 2024).

Almost all countries require their listed firms to establish a stringent corporate governance mechanism to ensure the protection of shareholder interests. Within this framework, ESG disclosure evolves as a critical component of contemporary corporate governance mechanisms (Petcharat et al., 2025). Besides monitoring financial information quality, it mandates firms to publicly report on sustainable and governance practices to enhance the oversight of managerial conduct and mitigate information asymmetry between management and stakeholders to avoid any pitfalls. ESG and ESG disclosure are cohesively interconnected and collectively attributed to enhance corporate accountability and improve financial transparency (Velte, 2019). The pragmatic corporate governance mechanism provides the structural foundation through which companies are effectively supervised to ensure that management acts in the best interest of shareholders (Abdelbaky et al., 2024). ESG disclosure, on the other hand, extends the transparency mandate beyond financial performance to include environmental stewardship, social responsibility, and governance quality. Together, ESG and corporate governance form a complementary governance mechanism that holds management accountable not only for financial outcomes but also for sustainable and ethical business practices (Li et al., 2025). The cohesive mechanism of corporate governance also minimizes the likelihood of earnings management and ensures that management reports

high-quality information so that shareholders can make informed investment decisions (Sun et al., 2024). However, past studies have overlooked the various key aspects of corporate governance and their linkages with ESG and earnings management behavior of the firms (Lestari & Muthmainnah, 2025). For instance, the effectiveness of corporate governance mechanisms largely depends on the composition and diversity of the corporate board. The corporate board, as one of the key tools of corporate governance, remains highly regulated, and its composition is supported by certain stringent regulations. Accordingly, board diversity signifies that the board should also include the element of gender equality, besides incorporating both independent and dependent directors (Mao et al., 2024). The independence and diversity of the board are better positioned to challenge managerial decisions, reduce biases, and mitigate opportunistic behaviors of the firms, such as earnings management (Lestari & Muthmainnah, 2025). However, past studies, particularly in the context of the Gulf Cooperation Council (GCC) region, have overlooked this pivotal aspect of corporate governance, i.e., gender diversity (Mnasri et al., 2025; Sun et al., 2024; Velte, 2019). In the context of the GCC region, board diversity is especially important in emerging markets like the GCC, where governance structures are evolving, and sustainability concerns are increasingly fostering companies to comply with stringent environmental and sustainability regulations. Therefore, integrating ESG disclosure with diverse and independent boards can create a synergistic governance mechanism for GCC firms to foster transparency of financial reporting and contribute toward more sustainable business practices (Mnasri et al., 2025).

In past studies, the significant role of ESG disclosure has been highlighted in shaping financial success and development, along with maintaining financial transparency and sustainability. Moreover, further evidence has also substantiated the presence of the earnings management challenge, which cannot be undermined in the GCC region (Al Hosani et al., 2025). In addition, the perspective of ESG in shaping better financial sustainability, along with reducing the cost aspects, establishing a transparent system, and effectiveness in productive deliverables, has also been enlightened. Therefore, this study is concerned with the pivotal role of ESG disclosure and earnings management behavior of GCC firms while examining corporate board diversity as a moderating variable. Given the unique institutional and cultural environment of the GCC firms, our findings will provide regulatory and managerial insights to determine how ESG disclosure interacts with board diversity to influence opportunistic behavior such as earnings management.

This study is directly relevant to the field of Decision Sciences as it develops an integrated decision-support framework that links ESG disclosure, corporate governance, and earnings management to reduce the possibility of corporate misconduct and thereby protect shareholder rights. Corporate governance is mainly related to decision-making at the corporate level. The strategic decisions are endorsed by the board of directors to maximize shareholder wealth. Accordingly, corporate governance is relevant to ensure that decision-making relevant to accounting policies and procedures is reliable enough to provide the transparent disclosure of financial information. Therefore, our findings will offer valuable insights into how ESG and corporate governance attributes remain imperative for stakeholders to make informed investment decisions in the context of GCC regions.

The study rationale is motivated by growing shareholder activism and regulatory focus on ESG disclosure and rising public concern over earnings management practices. Past studies largely remain devoted to examining the impact of ESG and its nexus with earnings management in the context of developed economies. In contrast, our study aims to determine the impact of ESG and its nexus with EM in the GCC region. The GCC regions remain pivotal because ESG disclosures are not mandatory and remain discretionary.

This study provides several key contributions to the literature. First, it provides empirical evidence of the relationship between ESG disclosure and earnings management in a GCC context, where governance structures and sustainability regulations are still at a nascent stage. Second, this work incorporates board diversity as a moderating governance mechanism and hence provides novel insights into how board composition impacts the effectiveness of ESG disclosures in enhancing financial reporting quality. Third, by positioning ESG disclosures as a decision-relevant governance tool, the study contributes to the decision sciences literature by showing how nonfinancial information enhances investor and regulatory decision-making. Collectively, these contributions advance knowledge about ESG, corporate governance, and financial transparency in emerging markets.

## **2 Literature Review and Background Theory**

Corporate sustainability performance has gained central momentum in shareholder relationships and firm value creation. Therefore, corporate boards of firms are striving to reshape their corporate strategies and have started the integration of ESG into their business practices (Maaloul et al., 2023). Past literature has devoted extensive attention to examining the role of ESG and its impact on organizational performance (Arayssi et al., 2020; Kilic et al., 2022), lower cost of equity financing (Alkhawaja et al., 2023), and improved corporate reputation (Feng et al., 2025). However, there is a dearth of evidence about the potential role of the corporate board and sustainability performance. Past studies have inferred the significant financial benefits of ESG and posit that global ESG-integrated assets are mounting to the substantial reach of \$35 trillion in 2023, with an expected forecast of \$50 trillion by the end of 2025 (Mnasri et al., 2025). These projections signify the growing significance of ESG as an increasingly critical factor for firm value creation and shareholder relationships. Past studies contain ample evidence regarding the role of ESG and its positive outcomes; however, evidence in the context of developing and emerging economies remains in short supply (Kilic et al., 2022; Lestari & Muthmainnah, 2025; Maaloul et al., 2023).

ESG disclosure has evolved from voluntary corporate social responsibility reporting to a central corporate-governance and regulatory enforcement around the globe. For emerging economies such as the GCC companies, regulators, and stock exchanges have intensified their efforts to improve sustainability reporting regulations to ensure the protection of shareholders (Abusharbeh et al., 2025; Arayssi et al., 2020). The growing significance of ESG disclosure is increasingly recognized as a core fiduciary responsibility of corporate governance. The mechanism of corporate governance is a regulatory requirement that fosters companies to integrate ESG into their corporate practices. Boards of directors are expected to ensure that sustainability considerations are integrated into decision-making alongside

financial objectives. The corporate board ensures that companies adhere to the ESG disclosure requirements and not only fulfills its fiduciary duty of safeguarding shareholders' interests but also addresses the concerns of wider stakeholders to ensure long-term sustainability. Strong corporate governance practices reinforce transparency and reduce the likelihood of opportunistic behavior of management, such as earnings management.

## ***2.1 Theory and Hypothesis Development***

Following the prospect of stakeholder theory and legitimacy theory, this study aimed to examine the impact of environmental, social, and governance (ESG) disclosure on the earnings management (EM) targeting the Gulf Cooperation Council (GCC), which comprises six Arab countries. Past studies have focused more on the connection between ESG disclosure and earnings management. Transparent ESG disclosure has several benefits. Initially, the ESG helps to establish transparency and sustainable economic growth. Literature and theoretical underpinnings have already elaborated that companies having a good outlook of ESG tend to have a world-competitive edge in controlling the manipulation levels over firms having less ESG tendency, which in turn enhances the level of the company's reputation (Abdelbaky et al., 2024; Abusharbeh et al., 2025; Alkhawaja et al., 2023). Secondly, in contrast, it has been explored in past studies where a significant and positive association has been found between a good ESG impression and earnings management (Arayssi et al., 2020; Athari, 2024; Cui et al., 2025). Based on the previous discussion, the following hypothesis has been extracted.

*H<sub>1</sub>: There is a significant and negative impact of ESG disclosure on earnings management.*

Notwithstanding these conflicting results, little focus has been placed on the institutional and governance elements that could account for the ways in which ESG disclosure promotes earnings management. Specifically, the role of corporate board independence and board diversity on this relationship has not been thoroughly investigated (Mnasri et al., 2025). Board composition and board diversity may influence whether ESG practices are truly incorporated into corporate strategy or are merely employed for impression management, as boards are in charge of monitoring the quality of financial reporting as well as sustainability disclosure. This disparity is particularly noticeable in the GCC, where board diversity is still low by international standards, regulatory enforcement varies, and ESG reporting is still developing. Therefore, analyzing the ways in which board diversity influences the relationship between ESG and earnings management provides a useful contribution, resolving both theoretical ambiguity and real-world policy issues in emerging markets. Therefore, based on the extensive literature review, this study hypothesizes that higher ESG disclosure leads to a lower level of earnings management in the context of GCC firms. Accordingly, the board diversity moderates the relationship between ESG disclosure and earnings management behavior of GCC firms.

*H<sub>2</sub>: There is a significant moderating influence of board diversity on the relationship between ESG and earnings management.*



## 2.2 Theoretical Framework

Environmental, social, and governance (ESG) disclosure is profound as a framework that is employed to promote sustainable and transparent financial reporting. Based on the stakeholder theoretical perspective, firms are required to disclose the ESG-oriented information to ensure and protect the benefits of all concerned stakeholders, with a reduction in the information asymmetry (Abdelbaky et al., 2024; Adeneye et al., 2024). In past studies, there are two schools of thought that exist; a few researchers explored significant and positive (Mao et al., 2024; Saleh et al., 2025), while others found a significant and positive association between ESG and earnings management (García-Sánchez & García-Meca, 2017). Moreover, the literature has posted this phenomenon with the application of legitimacy theoretical underpinnings, where it has been demonstrated that companies can attain societal legitimacy by employing ESG disclosure to meet the stakeholders' and societal expectations. The GCC-based companies, moreover, try to manage the manipulation by applying distinctive tactics like diversifying the board and technological advancements to ensure transparency, which tends to enhance the financial and non-financial expectations of all concerned stakeholders (Kim et al., 2012).

## 3 Data and Methodology

### 3.1 Data Description

The purpose of this study is to examine the effect of Environmental, Social, and Governance (ESG) factors on earnings management, with the moderating role of board diversity in firms working in the Gulf Cooperation Council (GCC) region. The GCC region contains six countries: Saudi Arabia, the United Arab Emirates, Kuwait, Bahrain, Oman, and Qatar. This region has been selected for analysis because of its rapidly evolving ESG landscape, unique corporate governance structures, and growing emphasis on sustainability amid economic diversification efforts. This study employed annual data on ESG, earnings management, board diversity, firm size, return on assets (ROA), and leverage, collected from DataStream within the GCC region for the period 2015 to 2024. The study period captures the years during which most GCC firms began consistent ESG reporting, ensuring comprehensive data availability and representation of the majority of listed companies.

### 3.2 Methodology

Historical studies posted two methods for the measurement of earnings management, including the Jones Method and the Modified Jones Method, while a few studies enlightened the discrepancies regarding the measurement of earnings management by applying both methods. These issues have been overcome during the measurement of earnings management, where lagged return on assets were considered to resolve the heteroscedasticity and model misspecifications. Initially, total accruals were computed by taking the difference between operating earnings and net cash flows from operations.

$$TACC_{i,t} = O. Earn_{i,t} - N. OCF_{i,t} , \quad (1)$$

where  $TACC_{i,t}$ ,  $O. Earn_{i,t}$ , and  $N. OCF_{i,t}$  demonstrate total accruals, operating earnings, and net cash flows from operations. In the second step, total accruals are adjusted by scaling with lagged total assets, and their components are considered for employing regression analysis.

$$\frac{TACC_{i,t}}{TA_{i,t-1}} = B_0 + B_1 \left( \frac{1}{TA_{i,t-1}} \right) + B_2 \left( \frac{\Delta REV_{i,t} - \Delta REC_{i,t}}{TA_{i,t-1}} \right) + B_3 \left( \frac{PPE_{i,t}}{TA_{i,t-1}} \right) + B_4 ROA_{i,t-1} + E_{i,t}, \quad (2)$$

$$NDACC_{i,t} = B_0 + B_1 \left( \frac{1}{TA_{i,t-1}} \right) + B_2 \left( \frac{\Delta REV_{i,t} - \Delta REC_{i,t}}{TA_{i,t-1}} \right) + B_3 \left( \frac{PPE_{i,t}}{TA_{i,t-1}} \right) + B_4 ROA_{i,t-1} + E_{i,t}, \quad (3)$$

where  $B_0, B_1, B_2, B_3$ , and  $B_4$  coefficients are considered for the extraction of non-discretionary accruals. Moreover,  $TA_{i,t-1}$ ,  $\Delta REV_{i,t}$ , and  $\Delta REC_{i,t}$  demonstrates the lagged total assets, and the change in revenue and accounts receivable. In addition,  $PPE_{i,t}$ ,  $ROA_{i,t-1}$ , and  $NDACC_{i,t}$  elaborated on the property, plant, and equipment for the company, lagged return on assets, and non-discretionary accruals. For instance, the  $E_{i,t}$  presents the error term, where  $i$  and  $t$  demonstrates cross-sectional units (firms) and the time dimension.

$$DACC_{i,t} = TACC_{i,t} - NDACC_{i,t}, \quad (4)$$

$$ADACC_{i,t} = \text{Absolute Value of } DACC_{i,t}, \quad (5)$$

where  $DACC_{i,t}$  and  $ADACC_{i,t}$  demonstrates the discretionary accruals and absolute discretionary accruals, which can be computed by taking the difference between total accruals and non-discretionary accruals. Drawing from previous research, absolute discretionary accruals are used as a measure of earnings management because managers are motivated to engage in earnings management strategies to either inflate or reduce reported income. The following three models are developed on the basis of historical studies, where the first model presents a direct relationship between ESG and EM, along with the control factors of firm size, ROA, and leverage.

#### Model 1:

$$EM_{i,t} = \alpha_0 + \alpha_1 ESG_{i,t} + \alpha_2 FS_{i,t} + \alpha_3 ROA_{i,t} + \alpha_4 LEV_{i,t} + E_{i,t}, \quad (6)$$

where  $\alpha_0, \alpha_1, \alpha_2, \alpha_3$  and  $\alpha_4$  are considered as coefficients of the first model. Moreover,  $ESG_{i,t}$ ,  $FS_{i,t}$ ,  $ROA_{i,t}$ , and  $LEV_{i,t}$  demonstrates the environmental, social, and governance index, firm size, return on assets, and leverage.

#### Model 2:

$$EM_{i,t} = \beta_0 + \beta_1 Env_{i,t} + \beta_2 Soc_{i,t} + \beta_3 Gov_{i,t} + \beta_4 FS_{i,t} + \beta_5 ROA_{i,t} + \beta_6 Lev_{i,t} + E_{i,t}, \quad (7)$$

where  $\beta_0, \beta_1, \beta_2, \beta_3, \beta_4, \beta_5$  and  $\beta_6$  are considered as coefficients of the second model. The ESG pillars contain three individual components, including Environmental (Env), Social (Soc), and Governance (Gov).

In this model, a direct relationship between components of ESG (Environmental, Social, and Governance) and EM is presented along with the control factors.

### Model 3:

$$EM_{i,t} = \lambda_0 + \lambda_1 ESG_{i,t} + \lambda_2 BD_{i,t} + \lambda_3 ESG * BD_{i,t} + \lambda_4 FS_{i,t} + \lambda_5 ROA_{i,t} + \lambda_6 Lev_{i,t} + E_{i,t}, \quad (8)$$

where  $\lambda_0, \lambda_1, \lambda_2, \lambda_3, \lambda_4, \lambda_5$  and  $\lambda_6$  are considered as coefficients of the third model.  $BD_{i,t}$ , and  $ESG * BD_{i,t}$  demonstrates the board diversity and interaction term of the moderating factor. In this model, the moderating role of board diversity is presented in the relationship between ESG and EM. Additionally, for in-depth analysis, the moderating effect of board diversity with components of ESG was also tested for further exploration and detailed analysis to enhance the generalizability and establish implications for market participants. Table 1 demonstrates the variables measurement, databases, and relevant citations are provided for reference.

**Table 1: Variable Measurements**

Variables	Acronyms	Measurements	Databases	Citations
Earnings management	EM	Absolute discretionary accruals	DataStream	(Islam et al., 2011)
Environmental, social, and governance disclosure	ESG	ESG Combined Score	DataStream	(Velte, 2019)
Environmental disclosure	Env	Environmental Pillar Score	DataStream	(Velte, 2019)
Social disclosure	Soc	Social Pillar Score	DataStream	(Velte, 2019)
Governance disclosure	Gov	Governance Pillar Score	DataStream	(Velte, 2019)
Board diversity	BD	Dummy (Male-1, Female-0)	DataStream	(Burke, 1997)
Firm Size	FS	Total Asset	DataStream	(Gong et al., 2008)
Return on Asset	ROA	Return On Assets - Actual	DataStream	(Doyle et al., 2007)
Leverage	LEV	Debt to equity ratio	DataStream	(Doyle et al., 2007)

Note: This table presents the variables, acronyms, database from which data is collected, and citations that are being used in the literature.

## 4 Empirical Analysis

**Table 2: Descriptive Statistics**

Variables	N	Minimum	Maximum	Mean	SD
EM	910	0.032	2.796	0.754	0.147
ESG	910	7.539	174.562	74.930	32.708
Env	910	0.167	88.935	32.463	18.285
Soc	910	0.319	91.401	28.785	15.510
Gov	910	6.773	95.625	53.910	17.623
BD	910	0.000	1.000	0.857	0.350
ESG_BD	910	0.000	174.562	66.012	41.152
Env_BD	910	0.000	88.935	28.842	20.710
Soc_BD	910	0.000	91.401	25.100	17.682

Gov_BD	910	0.000	95.625	46.579	25.031
FS	910	6.563	11.414	9.299	0.864
ROA	910	-0.141	0.429	0.053	0.057
LEV	910	0.000	0.947	0.268	0.207

Note: This table presents the descriptive statistics containing (EM-Earnings Management being calculated by the modified Jones Method; ESG-Environmental, Social, and Governance Disclosure; ESG-Components; BD-Board Diversity, Interaction terms, FS-Firm Size, ROA-Return on Assets, and LEV-Leverage). Moreover, the N-number of observations and the SD-standard deviation are demonstrated.

Table 2 demonstrates the preliminary analysis of earnings management (EM), environmental, social, and governance index (ESG), board diversity, and a few control factors for firms working in the GCC region. The mean value of earnings management was observed as 0.754 with a relatively low standard deviation (0.147). The extreme range of values remained between 0.032 and 2.796, while some firms engage in very low levels of earnings management, others adopt aggressive practices, which may be because of distinctive regulatory enforcement and governance mechanisms in emerging markets. Furthermore, the mean and SD values for the ESG factor were noted as 74.930 and 32.709, respectively. The higher mean values of ESG demonstrated a significant and contributory role in a firm's adoption. In addition, the ESG components posted with values of 53.91, 32.46, and 28.46, respectively, for environmental, social, and governance. These values posted that in the GCC region, it has been given greater emphasis on governance reforms to maintain economic growth, along with considering the environmental challenges. The mean value of board diversity has been posted as 0.857, with an indication of male dominance having very low variations. The international term of moderating factor has also shown a high value, which is demonstrated by its contributory role. The findings have implied that companies with an upper level of ESG can demonstrate better financial performance, which can provide benefits to the investors and other associated market participants, particularly in maintaining transparency and growth levels.

**Table 3: Correlation Matrix**

	EM	ESG	Env	Soc	Gov	BD	ESG_BD	Env_BD	Soc_BD	Gov_BD	FS	ROA	LEV
EM	1.000												
ESG	0.034*	1.000											
Env	0.041*	.707**	1.000										
Soc	0.047*	.728**	.480**	1.000									
Gov	0.033*	.779**	.455**	.422**	1.000								
BD	-0.019	.156**	.159**	.079*	0.060	1.000							
ESG_BD	0.006*	.820**	.604**	.556**	.602**	.655**	1.000						
Env_BD	0.017	.644**	.856**	.404**	.423**	.569**	.814**	1.000					
Soc_BD	0.020	.647**	.449**	.802**	.366**	.580**	.822**	.645**	1.000				
Gov_BD	0.001*	.617**	.431**	.326**	.645**	.760**	.894**	.707**	.674**	1.000			
FS	.121**	-.089**	0.025	.187**	-.133**	-.344**	-.272**	-.161**	-0.032	-.327**	1.000		
ROA	-0.005	-.206**	-.097**	-0.024	-.250**	0.018	-.137**	-0.050	0.011	-.161**	-0.017	1.000	
LEV	-0.019	-0.007	-.070*	-0.026	0.017	.217**	.121**	0.045	.108**	.165**	-.130**	-.101**	1.000

Note: Significance levels \* p<0.1, \*\* p<0.05, \*\*\* p<0.01

Table 3 demonstrates the correlation matrix among earnings management, ESG, board diversity, and control factors. Findings posited that earnings management has shown a significant and positive

correlation with ESG ( $r = 0.034$ ,  $p < 0.05$ ) along with its sub-components, including environmental ( $r = 0.041$ ,  $p < 0.05$ ), social ( $r = 0.047$ ,  $p < 0.05$ ), and governance ( $r = 0.033$ ,  $p < 0.05$ ). This weak association of ESG adoption may be symbolic or compliance-driven rather than embedded into firm strategy. The results remained contrasting with past literature and agency theory, where findings demonstrated a significant and positive relationship, suggesting that higher ESG engagement should constrain opportunistic reporting (Mao et al., 2024; Saleh et al., 2025). For instance, it has been observed that in the GCC region and under consideration firms, the ESG score should not be taken at face value as a guarantee of financial reporting integrity. Furthermore, the investors must carefully evaluate whether ESG disclosures are substantive or primarily for reputational purposes.

Moderating factor board diversity demonstrated a negative but insignificant correlation with earnings management, which indicated that board diversity has no direct influence in mitigating earnings management ( $r = -0.019$ ). However, there is a significant and positive correlation observed between board diversity and ESG ( $r = 0.156$ ,  $p < 0.01$ ), and there is also a significant linkage with interaction terms (e.g., ESG\_BD;  $r = 0.655$ , Gov\_BD;  $r = 0.760$ ), implying that diversity may amplify the effectiveness of ESG in shaping corporate outcomes. The extracted outcomes follow the guidelines of stakeholder theory and remain consistent with past research studies (Abusharbeh et al., 2025; Alkhawaja et al., 2023; Mnasri et al., 2025). In addition, it has been validated that seeking diversity in the board structure may lead to validating the perspective of ESG disclosure. These findings extended policy implications for regulators to consider such a diversified board structure when firms are seeking ESG disclosure, which may lead to enhancing financial stability while controlling financial manipulations. Before the empirical investigation of GLS, basic assumptions are tested, including unit root, multicollinearity, heteroskedasticity, and autocorrelation.

**Table 4: Diagnostic Testing**

Variables	Unit root test (Fisher-ADF)		Multicollinearity	
	Chi Sqr	P-value	VIF	Tolerance
EM	277.36	0.0000	-	-
ESG	262.22	0.0000	3.4831	0.1179
Env	279.46	0.0000	2.2772	0.4391
Soc	269.23	0.0000	3.0156	0.3316
Gov	244.41	0.0002	3.1397	0.3185
BD	49.91	0.0066	1.2453	0.8030
FS	281.55	0.0000	1.4000	0.7143
ROA	326.04	0.0000	1.1285	0.8861
Lev	267.66	0.0000	1.0813	0.9248

Note: This table presents the basic diagnostic tests, including the unit root test (ADF-Augmented Dickey Fuller), and multicollinearity (VIF-Variance inflation factor).

The findings in Table 4 presented that the under-consideration variables were found stationary at the level, and details are provided. The multicollinearity test was examined via VIF and tolerance level, which also showed that there is no issue of multicollinearity in the variables. Moreover, the heteroskedasticity has

been examined via White test, which ensured that there is no issue present in the data regarding heteroskedasticity. During the GLS regression analysis, Table 5 presented a Durbin-Watson value, indicating that there is no issue of autocorrelation.

**Table 5: Random-effects GLS Regression**

Variable	Coefficient	Std. Error	T-Value	P-Value	95% CI	99% CI
ESG	0.0003	0.0001	2.2200	0.0270	0.0000	0.0005
FS	0.0228	0.0108	2.1100	0.0350	0.0016	0.0440
ROA	0.0186	0.0682	0.2700	0.7850	-0.1150	0.1523
LEV	0.0001	0.0247	0.0100	0.9960	-0.0484	0.0486
C	0.5394	0.1095	4.9300	0.0000	0.3248	0.7541
Number of observations	910					
Wald $\chi^2(13)$	31.62 (p = .0027)					
R-Square	13.10%					
Within:	0.0272					
Between:	0.0874					
Overall:	0.0334					
Durbin-Watson	1.9470					

Note: This table presents random-effects GLS regression results examining the relationship between ESG disclosure and earnings management. FS = Firm Size; ROA = Return on Assets; LEV = Leverage. The Wald  $\chi^2$  statistic tests overall model significance. All variables are processed to minimize the impact of outliers, and p-values are reported in the table.

Random GLS regression analysis has been presented in Table 5, where the impact of ESG on earnings management was investigated. There are a few control variables included to ensure the model specification, like firm size, leverage, and financial performance. The Hausman test was used to post the results of the random effect model, which ensured its suitability and reliability (p-value>0.05). The outcomes have presented a significant and positive relationship between ESG and earnings management, which demonstrates that the enhancement in ESG disclosure can lead to an increase in earnings manipulation. The coefficient and p-values were observed for this ESG-EM relationship, noted as 0.0003 and 0.027. The findings are aligned with past research studies where similar results have been observed in different contexts (Mao et al., 2024; Saleh et al., 2025). Moreover, these outcomes are in contrast to the perspective of agency theory; however, they are in support of and validation of legitimacy theory (Kim et al., 2012). A few of the counter results have been examined in past studies, with a negative association between the ESG and earnings management (Mao et al., 2024). The outcomes have significant implications for investors and policymakers to formulate the investment and financing strategies accordingly. A positive influence of firm size has been observed on earnings management, which implies that firms with higher levels of size tend toward increased manipulations. Additionally, inferences have been drawn in past studies that, despite higher visibility and monitoring, they may manipulate reported earnings to maintain legitimacy and reduce external pressures (Feng & Huang, 2021). Furthermore, model goodness and fitness are confirmed along with the absence of autocorrelation, which is considered the basis of OLS. Collectively, for this analysis, the findings reveal that ESG, instead of mitigating, may exacerbate earnings management practices in emerging markets, particularly in larger firms.

**Table 6: Moderation Analysis**

Variable	Coefficient	Std. Error	T-Value	P-Value	95% CI	99% CI
ESG	0.0007	0.0002	2.8700	0.0040	0.0002	0.0011
BD	0.0241	0.0216	1.1200	0.2640	-0.0182	0.0665
ESG*BD	-0.0005	0.0003	-1.7100	0.0870	-0.0010	0.0001
ENV	0.0009	0.0004	2.0500	0.0410	0.0000	0.0017
BD	0.0142	0.0167	0.8500	0.3940	-0.0184	0.0469
ENV*BD	-0.0007	0.0004	-1.7100	0.0870	-0.0015	0.0001
SOC	0.0013	0.0006	2.0000	0.0460	0.0000	0.0025
BD	0.0246	0.0170	1.4500	0.1490	-0.0088	0.0581
SOC*BD	-0.0011	0.0006	-1.8000	0.0730	-0.0022	0.0001
GOV	0.0010	0.0005	1.9900	0.0490	0.0000	0.0020
BD	0.0218	0.0214	1.0200	0.3120	-0.0208	0.0643
GOV*BD	-0.0006	0.0003	-1.9600	0.0530	-0.0013	0.0000
	I		II		III	
Wald $\chi^2(13)$	34.41 (p = .0010)		1.39 (p = .1726)		3.23 (p = .0001)	
R-Square						
Within	0.0327		0.0708		0.0708	
Between	0.1406		0.1369		0.1369	
Overall	0.0509		0.0353		0.0353	

Note: This table presents the results of the moderation analysis examining the role of board diversity (BD) in the relationship between ESG-EM. Models I–III represent the moderation effects for overall ESG, environmental (ENV), social (SOC), and governance (GOV) dimensions, respectively. Interaction terms (ESGBD, ENVBD, SOCBD, and GOVBD) capture the moderating influence of board diversity.

Table 6 demonstrates the moderation analysis examining the interaction between ESG dimensions and board diversity (BD) in shaping earnings management (EM). The results demonstrate that ESG has a positive and significant effect on EM ( $\beta = 0.0007$ ,  $p = 0.0040$ ), while its sub-dimensions, environmental ( $\beta = 0.0009$ ,  $p = 0.0410$ ), social ( $\beta = 0.0013$ ,  $p = 0.0460$ ), and governance ( $\beta = 0.0010$ ,  $p = 0.0490$ ), are also positively and significantly associated with earnings management. The aforementioned outcomes are aligned with the perspective of the legitimacy theory, which means organizations can implement the ESG disclosures in regulating the activities in parallel to managing the earnings manipulations (Kim et al., 2012). The findings posed implications for market participants that ESG disclosures, although increasingly emphasized in emerging markets, should not be interpreted as direct signals of diminished opportunism; instead, investors should be cautious and consider the possibility that ESG criteria may be used as a reputation management mechanism rather than as a genuine commitment to transparency.

The interaction terms between ESG and BD (ESG\*BD  $\beta = -0.0005$ ,  $p = 0.087$ ; ENV\*BD  $\beta = -0.0007$ ,  $p = 0.087$ ; SOC\*BD  $\beta = -0.0011$ ,  $p = 0.073$ ; GOV\*BD  $\beta = -0.0006$ ,  $p = 0.053$ ) are consistently negative, which has marginally significant, suggesting that board diversity weakens the positive relationship between ESG and EM. The moderation result implies that increased board diversity increases ESG performance and a minimal level of earnings management. The negative sign of the coefficient reflects that diverse corporate boards exercise more stringent monitoring mechanisms to regulate the decision-

making of management to prevent them from exploiting ESG performance as a cover for financial manipulation. Economically, the result implies that diverse boards tend to improve supervision and impose stringent ESG regulations to improve compliance and mitigate the manager's opportunistic behavior. Consequently, managers have fewer chances to manipulate and thereby a lower level of earnings management, which leads to transparent financial disclosure. The outcomes are supported by stakeholder theory (Rahman & Post, 2012). Furthermore, the findings are validated with the integration of both stakeholder theory and legitimacy theory. The prospect of stakeholder theory demonstrated that stakeholders' expectations can only be met by the inclusion of transparent activities in the organizational structure. Moreover, the prospect of legitimacy theory supports the argument that ESG disclosure may enhance the level of societal legitimacy. The inclusion of diversified board members can increase the possibilities of a good governance mechanism that leads to an increase in the trust of stakeholders, along with enhancing the quality of financial reporting.

For instance, findings have demonstrated the significant role of diversity in intensifying ESG commitments to materialize transparent financial reporting, which has significant managerial and policy implications for market participants. Additionally, the basic assumptions of GLS and moderation have been fulfilled, where R-square well explained the role of independent factors toward the dependent variable, ensuring the model's desired explanatory powers. Furthermore, the model has demonstrated its goodness and fitness. The outcomes of this study are contextualized within the GCC's distinctive institutional environment, where concentrated ownership structures, evolving regulatory frameworks, and cultural norms emphasizing reputation and legitimacy significantly influence corporate behavior. The coexistence of traditional governance models and emerging sustainability standards creates a complex setting in which ESG disclosure may serve both substantive and symbolic purposes. This regional perspective helps explain the observed ESG–earnings management dynamics and underscores the critical moderating role of board diversity in increasing the financial reporting credibility.

## **5 Conclusions**

Following the prospect of stakeholder theory and legitimacy theory, this study aimed to examine the impact of environmental, social, and governance (ESG) disclosure on the earnings management (EM) targeting the Gulf Cooperation Council (GCC), which comprises six Arab countries. The GCC contains Saudi Arabia, the UAE, Qatar, Oman, Bahrain, and Kuwait. Moreover, the objective is to explore the moderating influence of board diversity (BD) on the relationship between ESG and EM. The annual data of 91 GCC companies was collected from DataStream. After monitoring, cleansing, and normalizing the secondary data, descriptive statistics were computed via EViews software. The preliminary analysis demonstrated the normality of data by describing the mean, standard deviations, skewness, and kurtosis values, which were found under the defined benchmarks, and additionally met the criteria of further analysis. The correlation matrix was analyzed among the dependent, independent, and control factors, where empirical analysis found significant outcomes shedding light on dynamic relationships among the under-consideration factors. The earnings management presented a significant and positive association with ESG, its components, including environmental, social, and governance factors. Furthermore, there is



a negative association with board diversity. Moreover, the remaining relationships were also found in light of theoretical assumptions and shown with optimal levels.

In addition, the random GLS regression demonstrated a significant and positive relationship with ESG and earnings management. The findings on the basis of this discussion can be extracted; those firms that demonstrate a sustainable outlook tend to enhance the levels of earnings management. This ESG outlook may be considered as a potential determinant of earnings manipulation in the under-consideration region, which may prompt firms to consider such outlooks to manage and manipulate the financial reporting. On this basis, investors who consider only sustainable model-based firms for their portfolio formulations should remain vigilant in making their investment decisions and formulating strategies accordingly. Furthermore, the board diversity as an independent factor does not make any contribution in managing or manipulating the earnings, while, as a moderating factor, it has a negative influence on the relationship of ESG-EM. In the continuation, the board diversity also contributed to a combination of components of ESG, including environmental, social, and governance, toward negatively influencing the relationship of ESG-EM. The findings remain divergent as compared to developed markets, where the governance mechanism remained more established and developed, as compared to the emerging and less developed economies like the GCC. So, the findings may also posit distinctive behavior for such regions.

This study enlightened significant implications for stakeholders and market participants. Initially, the study demonstrated implications for industrial and academic researchers who are interested in seeking information for ESG and earnings management-related research studies. Secondly, the investors can be beneficial in seeking information about firms that are actively involved in ESG outlook and present transparency in financial reporting. So that they can make their information decision during the formulation of investment strategies. Finally, the study contributed to the field of decision sciences for the investors and policy makers, with a demonstration to ensure the strict compliance in the implementation of transparency and fair financial reporting to secure the rights of stakeholders. For instance, the results underscore the importance of integrating board diversity standards and stronger governance mechanisms into ESG disclosure policies to enhance transparency and ensure that sustainability reporting reflects genuine corporate practices. In the case of companies, the findings enlightened the importance of implementing board diversity initiatives—through gender-inclusive appointments, director development programs, and transparent selection practices—to reinforce the authenticity and credibility of ESG disclosures in the GCC context. This study acknowledges the practical challenges GCC firms may face in implementing ESG initiatives and board diversity reforms, given their unique institutional and cultural contexts. Firms must also weigh the cost-benefit trade-offs between symbolic and substantive ESG disclosure when allocating resources. Future research could explore regional comparisons and emerging trends to provide broader insights into ESG disclosure and governance dynamics in developing markets.

This study contributed to the existing body of knowledge categorically, where initially, it contributed to the validation of the prospect of stakeholder theory as board diversity weakens the positive association between ESG and earnings management, showing that diverse boards enhance oversight and align corporate practices with broader stakeholder interests. Secondly, this study advances existing literature by

providing novel evidence from the GCC context—an underexplored region in ESG research—where distinct institutional and governance structures shape corporate behavior. The study contributed novel insights for the investors and regulators of the GCC region who are interested in making investments only in sustainable outlook-based firms (ESG-oriented). The prospect of managing the earnings manipulation is higher, or at least that tends to make effective decisions for their portfolio formulation and establishing investment strategies. Finally, by investigating the moderating role of board diversity in the ESG–earnings management nexus, the study offers fresh insights into how governance mechanisms influence the credibility of sustainability disclosures in emerging markets.

Despite the significant contribution, the study has a few limitations. The study considered the GCC region as a whole, which may further be segmented into regions to increase the generalizability of the study. In this way, future studies can mitigate the limitations regarding the distinctive governance mechanisms of each region and provide an in-depth analysis. Such comparative studies would enhance the understanding of how institutional, regulatory, and cultural contexts influence the effectiveness of ESG practices and governance mechanisms across different emerging economies. For instance, the current study focused on ESG disclosure as a whole factor, while in future work, ESG individual components may also be considered to enhance the detailed analysis. The potential endogeneity between ESG disclosure, governance structures, and earnings management could not be fully eliminated despite the chosen econometric approach, which can further be explored with the generalized method of moments (GMM). Future studies may consider the role of emerging technologies such as AI-driven ESG ratings, which can provide better insights into reducing greenwashing and enhancing transparency.

**Funding Statement:**

"The authors gratefully acknowledge the funding of the Deanship of Graduate Studies and Scientific Research, Jazan University, Saudi Arabia, through project number: (RG24-S0222).

**Data Availability:**

Data will be available on request from the corresponding author.

## References

- Abdelbaky, A., Liu, T., Mingyang, X., Shahzad, M. F., & Hassanein, A. (2024). Real earnings management and ESG performance in China: the mediating role of corporate innovations. *International Journal of Finance & Economics*.
- Abusharbeh, M., Hanaysha, J. R., & Samara, H. (2025). The interactive effect of environmental management team with board attributes on sustainability pillars: Evidence from Gulf Cooperation Council (GCC). *International Review of Economics & Finance*, 104494.
- Adeneye, Y. B., Fasihi, S., Kammoun, I., & Albitar, K. (2024). Does earnings management constrain ESG performance? The role of corporate governance. *International Journal of Disclosure and Governance*, 21(1), 69-92.
- Al Hosani, N. H., Nobanee, H., & Ellili, N. O. D. (2025). The impact of board gender diversity on financial performance of non-financial companies of the UAE: the moderating role of environmental, social, and governance (ESG) disclosure. *Corporate Governance: The International Journal of Business in Society*, 25(8), 176-194.
- Alkhawaja, A., Hu, F., Johl, S., & Nadarajah, S. (2023). Board gender diversity, quotas, and ESG disclosure: Global evidence. *International Review of Financial Analysis*, 90, 102823.
- Arayssi, M., Jizi, M., & Tabaja, H. H. (2020). The impact of board composition on the level of ESG disclosures in GCC countries. *Sustainability Accounting, Management and Policy Journal*, 11 (1), 137–161. In.
- Athari, S. A. (2024). Does the sovereign environmental, social, and governance sustainability activities jeopardize the banking sector's stability: evidence from the Arab economies. *Sustainable Futures*, 7, 100204.
- Burke, R. J. (1997). Women on corporate boards of directors: A needed resource. *Journal of business ethics*, 16(9), 909-915.
- Cui, X., Li, R., Xue, S., & Zhang, X. (2025). Mandatory versus voluntary: The real effect of ESG disclosures on corporate earnings management. *Journal of International Money and Finance*, 154, 103323.
- Doyle, J. T., Ge, W., & McVay, S. (2007). Accruals quality and internal control over financial reporting. *The accounting review*, 82(5), 1141-1170.
- Feng, L., Leong, C.-M., & Ali, M. (2025). ESG investments, corporate reputation and market value: a comprehensive review and future research agenda. *Management & Sustainability: An Arab Review*.
- Feng, Z. Y., & Huang, H. W. (2021). Corporate governance and earnings management: A quantile regression approach. *International Journal of Finance & Economics*, 26(4), 5056-5072.
- García-Sánchez, I. M., & García-Meca, E. (2017). CSR engagement and earnings quality in banks. The moderating role of institutional factors. *Corporate Social Responsibility and Environmental Management*, 24(2), 145-158.
- Gong, G., Louis, H., & Sun, A. X. (2008). Earnings management and firm performance following open-market repurchases. *The Journal of finance*, 63(2), 947-986.

- Islam, M. A., Ali, R., & Ahmad, Z. (2011). Is modified Jones model effective in detecting earnings management? Evidence from a developing economy. *International Journal of Economics and Finance*, 3(2), 116-125.
- Kilic, Y., Destek, M. A., Cevik, E. I., Bagan, M. F., Korkmaz, O., & Dibooglu, S. (2022). Return and risk spillovers between the ESG global index and stock markets: Evidence from time and frequency analysis. *Borsa Istanbul Review*, 22, S141-S156.
- Kim, Y., Park, M. S., & Wier, B. (2012). Is earnings quality associated with corporate social responsibility? *The accounting review*, 87(3), 761-796.
- Lestari, R., & Muthmainnah, D. R. (2025). The impact of earnings management on perceived quality of earnings: the moderating role of ESG. *Asian Journal of Accounting Research*, 10(3), 258-276.
- Li, M. L., Li, M. D., Yu, M. Q., & Liu, M. X. (2025). Peer ESG controversies and enterprise earnings management. *Energy Economics*, 108736.
- Maaloul, A., Zéghal, D., Ben Amar, W., & Mansour, S. (2023). The effect of environmental, social, and governance (ESG) performance and disclosure on cost of debt: The mediating effect of corporate reputation. *Corporate reputation review*, 26(1), 1-18.
- Mao, Z., Wang, S., & Lin, Y. E. (2024). ESG, ESG rating divergence and earnings management: Evidence from China. *Corporate Social Responsibility and Environmental Management*, 31(4), 3328-3347.
- Mnasri, A., Temimi, A., & Arouri, H. (2025). Board gender diversity and ESG performance balance in GCC firms. *Finance Research Letters*, 80, 107352.
- Petcharat, N., Sanpakdee, P., Kookkaew, P., & Mula, J. M. (2025). The effects of real earnings management on the relationship between ESG performance and investment efficiency. *Journal of Accounting in Emerging Economies*.
- Rahman, N., & Post, C. (2012). Measurement issues in environmental corporate social responsibility (ECSR): Toward a transparent, reliable, and construct valid instrument. *Journal of business ethics*, 105(3), 307-319.
- Sabirali, K., Mahalakshmi, S., & Sahoo, J. R. (2025). Unveiling the relationship between corporate sustainability and earnings management: insights from India. *Managerial Finance*, 51(6), 927-941.
- Saleh, I., Abu Afifa, M., & Alkhawaja, A. (2025). Environmental, social, and governance (ESG) disclosure, earnings management and cash holdings: Evidence from a European context. *Business Ethics, the Environment & Responsibility*, 34(2), 295-308.
- Sun, W., Chen, S., Jiao, Y., & Feng, X. (2024). How does ESG constrain corporate earnings management? Evidence from China. *Finance Research Letters*, 61, 104983.
- Velte, P. (2019). The bidirectional relationship between ESG performance and earnings management—empirical evidence from Germany. *Journal of Global Responsibility*, 10(4), 322-338.