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ESG ENGAGEMENT, GENDER DIVERSITY, AND ACCOUNTING CONSERVATISM: EVIDENCE FROM EUROPEAN FIRMS

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ABSTRACT

This paper empirically examines how engagement in Environmental, Social, and Governance (ESG) influences accounting conservatism and explains how gender diversity moderates this association. This study uses a panel multiple regression model with the Generalized Method of Moments (GMM) to deal with potential endogeneity problems based on a panel data set of publicly listed, non-financial companies in six European countries. The accounting conservativeness is assessed using firm-level financial characteristics, whereas ESG scores and gender diversity indicators are obtained from Refinitiv DataStream. The findings show a twofold impact of the ESG engagement on accounting conservatism. ESG engagement in the current period has a positive correlation with accounting conservatism, as firms are afraid of active ESG transitions and report financial results cautiously. Nevertheless, the relationship between ESG engagement and the past period is negative, implying that the practices of long-term ESG decrease the dependency on conservative reporting through transparency and decreasing information asymmetry. In addition, the result shows that board gender diversity moderates the relationship between ESG engagement and accounting conservatism. Although increasing the percentage of women in the governing body will enhance the quality of governance and bring about conservative financial reporting, in the short-term, diversification of boards can lead to decision-making difficulties undermining the strength of ESG on conservatism in the immediate. The findings are in line with the notion that ESG engagement is a transparency tool as well as a governance tool, and gender diversity enhances monitoring and credibility in financial reporting practices. Regulators should promote the use of ESG and gender diversity policies to increase transparency and trust among stakeholders. The investors and firms are urged to inculcate ESG practices and board composition in the governance strategy.

KEYWORDS: ESG engagement; Gender diversity; Accounting conservatism; Stakeholder theory; GMM.

1. INTRODUCTION

Accounting conservatism is an accounting principle, according to which potential losses are stated prior to any recognition of full gains. Earlier studies have had the capacity to conclude that Conditional conservatism is a powerful method to limit the management of accruals-based earnings management and also increase the integrity of financial reporting by curbing the opportunistic methods of management (García Lara et al., 2020; Mukherjee et al., 2025). Better governance is promoted by conservative behavior since it suggests a more conservative attitude on gains, which is a good governance mechanism that lessens managerial opportunism, ethical financial reporting, and harmonization of stakeholder interests (Basu, 1997). In this regard, the concept of accounting conservatism is regarded as a protective measure against both investors and the agency risk, increasing the value of a corporation and affecting the decision-making process (El-Habashy, 2019).

Previous research on accounting conservatism has mainly focused on its relationship with corporate performance, corporate governance systems, and risk[1]. Also, in recent years, a growing concern has been whether environmental, social, and governance (ESG) engagement and female leadership team inclusion have an impact on conservative financial statements. ESG engagement refers to how a firm carries out sustainable practices, its ethical activities, and accountability to its stakeholders (Wahyuni et al., 2024). The strong ESG policy enables the companies to be in a position to solve the uncertainties in the long term, reduce financial risks, and restore stronger relationships with the stakeholders, which consequently results in more conservative financial reporting.

In the same way, gender diversity in leadership, especially on boards of directors, has been demonstrated to result in the increased number of ethical decisions, less earnings manipulation, and enhanced financial reporting supervision (Francis et al., 2015). This means that boards of gender diversity enhance accountability and facilitate ethical decision-making and, therefore, enhance the quality of financial reporting. Specifically, the relationship between the leadership of women and risk management shows that gender diversity is a possible moderator of the association between gender diversity, on the one hand, and ESG engagement and accounting conservatism, on the other hand. In addition, new regulatory measures in Europe indicate the significance of the integration of ESG and gender diversity into financial reporting, such as Corporate Sustainability Reporting Directive (CSRD) and the Sustainable Finance Disclosure Regulation (SFDR), requiring ESG transparency, and the European Union Directive on Gender Balance in Corporate boards, requiring a greater gender diversity, which shows its positive influence regarding the ethical finance practices. These regulatory developments point to the increased significance of ESG involvement and gender diversity to both corporate governance and financial reporting.[2]

Despite the increasing focus on ESG and gender diversity, there is limited empirical evidence on the effect of these two variables on accounting conservatism in European-listed companies. Muhammad et al. (2024) investigated the relationship between gender diversity in the board and accounting conservatism of European companies and showed the mediating role of corporate social responsibility (CSR). Their study findings reveal that the increased female representation on boards results in less conservative actions of financial reporting due to increased activities of CSR. Therefore, our study addresses a gap by discussing how ESG engagement and gender diversity influence conservative financial reporting practices. Through the analysis of the firms in Europe, this paper will discuss how sustainability commitments, inclusive leadership, and accounting policies relate to each other. The findings will have a value to investors, policymakers, and corporate decision makers in enhancing ethical and conservative financial reporting. Specifically, the study will attempt to answer the following questions: (i) Does ESG activity encourage more conservative financial reporting? (ii) Does gender difference in leadership moderate the association between ESG engagement and accounting conservatism? These countries share similar features in major indicators of economic performance, including the size of the GDP and the relevance of the financial market, yet present a decisive point of analysis because of the various

[1] The study conducted by Beaver and Ryan (2005) classifies accounting conservatism into conditional and unconditional conservatism. In conditional conservatism, a firm responds to economic fluctuation by significantly recognizing the negative financial events. Maiyo et al. (2024) identify conditional conservatism as a situation that occurs when firms adjust their financial reporting, while unconditional conservatism refers to an over-time undervaluation of net assets. Such conservatism affects the way that firms make their financial decision and practice in financial reporting.

[2] https://finance.ec.europa.eu/capital-markets-union-and-financial-markets/company-reporting-and-auditing/company-reporting/corporate-sustainability-reporting_en

institutional structures (Bonacchi et al., 2019).

According to the previous literature, Handoyo and Anas (2024) and Yu et al. (2024) make the argument that firms are committed to socially responsible actions because, according to them, ESG engagement provides firms with prudent accounting policies. In this regard, it is apparent that corporations that adhere to ESG principles are interested in minimizing information asymmetry and enhancing transparency. Moreover, as well as gender diversity increases the interplay between accounting conservativeness and ESG engagement in the corporate board, it can be a source of complexity in the short-term perspective of the company. Nonetheless, the obstacles can be overcome, as time goes by, with the inclusion of different leadership on the board, and the decision-making process becomes viable. Moreover, gender diversity on company boards strengthens the connection between accounting conservatism and ESG engagement, although it can create some complications for the company in the short run. Nonetheless, these problems can be reduced in the long run as the board incorporates various types of leadership, and thus the process of making decisions becomes efficient.

Based on these findings, this paper analyses the role of ESG engagement in accounting conservatism and how gender diversity moderates this role between European listed companies studied from 2008 to 2022, using the estimation of Random Effects and dynamic panel GMM. The key findings show that the level of ESG engagement tends to decrease conservatism in financial reporting as it expresses more transparency and less information asymmetry of socially responsible firms. Nevertheless, the engagement with gender diversity reveals that diverse boards are corrective and soften the deterioration of conservative reporting and strengthen governance quality. These results highlight the time-lagged impact of ESG efforts in which the long-term participation minimizes the necessity of conservatism, and the present ESG commitments can still require prudent reporting. Collectively, the findings indicate the complementary effect between ESG strategies and board diversity in the formation of reporting practices which prove the various governance and sustainability theories.

This paper contributes to the literature in several ways: First, it expands the previous research by placing ESG engagement in an analytical framework, with the effect of it on accounting conservatism in the European setting. The earlier studies mostly focused on studying the relationship between ESG and firm performance and did not consider what it entails with regard to firm reporting. Switching the focus to conservative accounting practices, the study helps to understand the way in which ESG informs the financial reporting, by affecting the corporate reputation and the trust towards the stakeholders. Based on stakeholder theory, the results indicate that ESG-based accounting practices reinforce ethical behavior, increase transparency, and reduce reputational risk (Eccles et al., 2014). This view is also compliant with agency theory, in which conservatism serves as a methodology to decrease agency disputes by closing the communication distance between the managers and the shareholders, and enhancing the stakeholders' confidence (Liu, 2024). Second, the paper is a continuation of earlier research in that it brings a moderation factor, gender diversity to the ESG-ESG-conservatism nexus. Contrary to existing studies on the subject, which consider board diversity or ESG performance independently, this study has shown that board diversity in the form of women representation not only improves the governance performance but also enhances sustainable and ethical decision-making. It is based on resource dependence, the critical mass, and the risk aversion theories and underscores the potential of attaining meaningful female participation in board operations, effective governance, and credibility of financial disclosures. Lastly, the research incorporates firm as well as country level of controls in the model, which adds strength to the research findings and elucidates the role of contextual influences on conservatism in reporting. The research offers policymakers, investors, and researchers practical recommendations by integrating ESG activity, board diversity, and institutional settings in a single model to ensure that sustainable governance compliance is consistent with the high-quality financial reporting in European companies.

The rest of the paper is organized as follows: Section 2 entails a literature review and formulation of testable hypotheses. Section 3 summarizes the research design and methodology used in the research. Section 4 presents empirical findings, and Section 5 gives a conclusion and discussion of the major findings, limitations, and recommendations of future studies.

1. Literature Review and Hypotheses Development

Over recent years, ESG engagement, along with increasing popularity among businesses and practitioners, has experienced a surge of interest, and its impact on financial reporting has increased exponentially. According to Amel-Zadeh and

Serafeim (2017), ESG practices are a strategic instrument that influences the quality of financial reporting and stakeholder confidence[3]. When the ESG practices are aligned with the principles of accounting conservatism, they demonstrate the determination of the firm to be accountable, ethical in reporting, and trustworthy by the stakeholders in the long term (Ren, 2025). Through responsible risk management and transparent governance, ESG-engaged firms have a higher likelihood of identifying losses before gains, minimizing information asymmetry and increasing the level of credibility in financial reports. In the European context, the association between ESG engagement and accounting conservatism remains underexplored. Several prior studies (Khlifi et al., 2024; Ferdous et al., 2024; Muhammad et al., 2024; Chen et al., 2023) have concluded that ESG performance and gender diversity are positively associated with accounting information, which is more reliable and also reduces the need for aggressive financial reporting practices.

1.1. ESG and Accounting Conservatism

The concept of accounting conservatism is a financial reporting principle that seeks to record losses earlier than gains, which contributes to transparency and minimizes financial risk (Watts, 2003). ESG engagement illustrates how the firm acts strategically in line with the expectations of the stakeholders, which include environmental sustainability, social responsibility and governing practices. Firms need to consider the interests of different stakeholders, and not just of shareholders, as Freeman (2010) illustrates using the stakeholder theory. The theory also indicates the relevance of ESG in determining accounting outcomes. While, according to Eccles et al. (2014), performing ESG activities demonstrates a company's ability to respond to societal pressures, lowers the risks of harming its reputation, and signals orientation and transparency in the long term. Such an approach builds trust among stakeholders and can motivate companies to follow conservative ways of accounting to show their ethical principles.

This is in line with the agency theory (Christensen et al., 2015; Maiyo et al., 2024), which considers accounting conservatism as a method to reduce agency problems between the shareholders and the managers by minimizing the opportunities for managers to act opportunistically and manipulate earnings (Ball et al., 2000; Watts, 2003; Ball and Shivakumar, 2005). Liu (2024) posits that reporting conservatively bridges the information asymmetry between managers and shareholders, which eventually increases the credibility of the financial reporting and boosts stakeholder confidence. Supporting this perspective, institutional theory further posits that companies are exposed to normative and regulatory pressures to uphold legitimacy and meet the requirements of stakeholders through the involvement of ESG practices (DiMaggio and Powell, 1983). In particular, institutional investors have a significant impact on the adoption of ESG practices to foster transparency and accountability, reduce agency costs, and encourage the implementation of conservative financial policies (Slager, 2019; Bonacchi et al., 2022).

These theoretical insights are supported by different empirical studies, such as Ferreira et al. (2022), who discovered that firms that have higher ESG ratings exhibit a lower conservatism level in successive periods, which illustrates how ESG engagement influences the reporting behavior of firms. Similarly, Lian et al. (2023) depict that firms with higher levels of ESG engagement experience lower corporate financial risk and greater transparency. Moreover, using data of Korean companies, Park and Ha (2020) report that the presence of strong ESG practices improves earnings transparency. In addition, Glover and Xue (2023) disclose that the ESG-active firms' engagement experience greater stakeholder pressure requiring the provision of ethical financial behavior, leading to more conservative accounting facilitation to improve transparency, reduce the information asymmetry, and foster credibility of financial disclosures. Collectively, these insights depict that ESG engagement acts not only as a driver of conservative reporting practices but also reflects sustainable and ethical commitments, which strengthen the accountability to stakeholders. Strengthening these arguments, this study analyzes the association between ESG engagement and accounting conservatism, as proposed in the hypothesis below.

H_1: Firms with higher engagement of ESG practices are more likely to adopt accounting conservatism due to the need for transparent financial disclosure and pressure of stakeholder accountability.

1.2. ESG Engagement, Gender Diversity, and

[3] ESG engagement revolves around three dimension-Environment (E), Social (S), and Governance (G). (E) refers to the reduction of the environmental footprint of firms, including carbon emissions or resource usage. While (S) reflects the impact of a firm on society in terms of employee welfare, community engagement, and relationships with customers or shareholders. Whereas (G) evaluates the corporate governance integration in maintaining transparency and ethical conduct.

Accounting Conservatism

Gender diversity is the set of values and skills that adjunct faculty offer to the board and establishes a relationship between corporate governance and a diversified management team (Farrell & Hersch, 2005; Wang et al., 2018). The question of diversity on the board is an active debate. Thus, governments have begun to employ gender quota laws, which require companies to have women appointed to corporate boards. This suggests that gender diversity in corporations is an emerging issue in strategic decision-making as well as in the process of determining the accountability of organizations.

In addition, gender diversity links to accounting conservatism, and diverse boards have been proven to make better decisions and enhance transparency in financial reporting. According to (Sayiq, 2022; El-Haddad & Saad Eldeen, 2025), firms with a larger proportion of women on the board have a greater tendency to be conservative in their financial reporting. This brings out the fact that diverse boards are strategic in aligning the sustainability and financial performance of firms since they have wider experience and stakeholder networks. As stated by Whieldon and Hall (2019), this strategy serves as a strategic initiative in response to the opportunities and risks associated with ESG. This perspective is supported by resource dependency theory (Pfeffer and Salancik, 1978). In this theory, the availability of diverse and external resources might help to enhance the ability of firms to cope with complex environments. On the same note, according to Suchman (1995), the legitimacy theory states that to be legitimate, companies ought to have a long-term relationship with the stakeholders and should meet the norms and values of society. Ashforth and Gibbs (1990) add that failure to fulfil such expectations would lead to the risk of losing credibility and strategic stakeholders. In this way, Gond et al. (2016) indicate that legitimacy is what businesses need to ensure their stability in the long term.

White (2019) argues that gender-diverse leadership improves the profitability of firms regarding the performance of stock price, whereas companies with low gender-diverse leadership are regarded as less profitable. This perspective is supported by risk aversion theory, which provides a behavioural explanation of the decision-making process conducted by female directors. Likewise, according to Bedeir (2024), women tend to be more risk-averse than men, and hence boards may engage in conservative financial practises. Also, the research of Nicolo et al. (2023) shows that the presence of female directors facilitates the increased disclosure of ESG concerns and improves governance-sustaining efforts. Furthermore, critical mass theory states that the impact of women on board affairs depends on the achievement of a particular threshold and is regarded as "critical mass" (Bedeir, 2024). Thus, the presence of a minimum proportion on the board can significantly affect the financial policies of firms.

The above-mentioned theories can be supported by the findings of diverse studies, such as Sayiq (2022) and El-Haddad and Saad Eldeen (2025), which state that companies with more women on the board are more likely to utilize conservative accounting. Furthermore, Almaqtari et al. (2024) illustrate that gender diversity moderates the association between ESG and financial performance. In addition, Saleh et al. (2025) point out that ESG engagement, as well as gender-diverse leadership, contributes to accountability, transparency, and a high degree of accounting conservatism and minimizes information asymmetry. Along with this, those companies that are engaged in ESG practices and have more diverse boards tend to be conservative in their financial reporting practices. Based on the foregoing discussion, we propose the following hypothesis.

H_2: Gender diversity in corporate boards moderates the relationship between ESG engagement and accounting conservatism due to the difference in responsiveness of stakeholders and risk aversion.

2. METHODOLOGY

2.1. Data Collection

Our study employs an empirical design using financial and non-financial data from DataStream (Thomson Reuters Eikon) for European-listed firms. The panel covers 2008–2022 and includes ESG scores, gender diversity measures, and accounting conservatism indicators. After excluding missing observations and financial firms, the final sample consists of 4,640 firm-year observations spanning multiple industries and incorporates both firm-level and country-level variables.

2.2. Dependent Variable

The concept of accounting conservatism, as explained by Phuong and Tra (2024), revolves around the timely recognition of potential losses while delaying the recognition of uncertain gains. Due to this principle, the financial statements will not be in a position to overstate the position of a firm, especially in circumstances where the market is volatile. According to Hajawiyah et al. (2020), the measurement of accounting conservatism might be difficult because it is judgmental and conceptual. To address this, the previous research has proposed

using firm-level attributes as proxies of conservatism in financial reporting (Khan & Watts, 2009). Regression analysis has been used to estimate the accounting conservatism in this paper, and this is based on empirical and theoretical evidence in the literature reviewed. This model uses variables that are conventionally used by El-Bannany (2017), Shabihi et al. (2014), and Phuong and Tra (2024) regarding the financial policy of companies, their governance, and ESG considerations. The model of accounting conservatism is estimated as a function of ESG engagement, ROA (profitability), leverage, ownership concentration, firm size, disclosure quality, and board experience. They are incorporated to assess the influences of different variables on the behavior of reporting.

The baseline regression of the ESG's impact on accounting conservatism is estimated by using the following equation:

$$AC_{it} = \alpha_0 + \beta_1 ESG_{it} + \beta_2 ROA_{it} + \beta_3 Size_{it} + \beta_4 Lev_{it} + \beta_5 Disc_{it} + \beta_6 OC_{it} + \beta_7 BTC_{it} + \in_{it} \quad (1)$$

2.3. Independent Variable

In this research, the primary independent variable is ESG scores that are extensively employed by Alsaadi et al. (2017) and De Villiers et al. (2022) to quantify the sustainability and ethical impact of a firm. The ESG score is an aggregate score that is compiled through self-reported data on all three dimensions of ESG. This has been computed using the Asset4 database through DataStream. The growing interest in ESG means that it is now among the primary drivers of company performance, bringing considerable benefits to a variety of stakeholders and investment opportunities. An increasing number of studies have also investigated the relationship between ESG practices of firms and business performance (Francis et al., 2013; Broadstock et al., 2021)

2.4. Moderator Variable

In this paper, gender diversity is employed as a moderating factor, and it is defined as both genders being represented on the board of directors, and the percentage of female representation on the board is taken as a proxy variable of gender diversity. Moreover, it has been concluded that high gender diversity on the leadership boards of companies is associated with more profitability in comparison with having company-level low gender diversity (White, 2019).

2.5. Control Variables

This research considers control variables that are specific to each firm by following Abdelrahman et al. (2025) and Alsaadi et al. (2017) to ensure the reliability of the analysis. The array includes: (i) SIZE which denotes the firm size and is estimated as the natural log of total assets; (ii) Lev refers to financial leverage measures how much a company depends on debt to run its operations and determined as total liabilities divided by total assets; (iii) ROA measures profitability as net profit divided by total assets; (iv) Age refers to firm age which represents the number of years since a company was established; (v) BM is a book-to-market ratio which is calculated by dividing shareholders' equity by its market value; (vi) PPE compares the firm's total fixed assets to its total assets and is shown as total fixed assets divided by total assets.

As this study is based on cross-country analysis, it is necessary to introduce country-specific control variables (Yang et al., 2022). First, the study considers the countries' financial disclosure requirements (Disclosure), as provided by La Porta et al. (2006). The extent of a firm's information environment is based on a measure reflecting the level of economic, environmental, and social disclosures that firms publish in CSR reports or annual reports, using GRI standards. The higher score for disclosure refers to more information about finances being made available to the public at the county level. Second, book-tax conformity demonstrates the similarity between the country's book and tax income (Jaafar and Thornton, 2015). If the score is high, it means the tax and financial books are highly aligned. Finally, similar to Atwood et al. (2010), the study uses the country-level concentration of ownership, which refers to the degree of concentration of shareholders. A higher value suggests that the firm is controlled by a few shareholders and ownership is more concentrated.

Together, these firm-level and country-level control variables also serve to isolate the effects of ESG engagement and gender diversity on accounting conservatism. Collectively, these firm-level and country-level control variables help to isolate the influence of ESG engagement and gender diversity on accounting conservatism, ensuring that the findings are not due to institutional, legal, and market-specific differences across Europe.

Error! Reference source not found. contains the detailed definitions, formulae, and data sources of each of the variables in this research to achieve clarity and deeper insight into each of the variables.

Table 1: Definition of Variables.

Type of Variables	Variables	Symbol	Definition	Formula	Data Source
Dependent Variable	Accounting Conservatism	AC	Accounting Conservatism refers to a financial reporting approach where firms recognize financial losses more promptly than gains.	$AC_{it} = \alpha_0 + \beta_1 ESG_{it} + \beta_2 ROA_{it} + \beta_3 Size_{it} + \beta_4 Lev_{it} + \beta_5 Disc_{it} + \beta_6 OC_{it} + \beta_7 BTC_{it} + \in\_(it)$	Estimated by the author
Independent Variable	ESG Engagement	ESG	ESG engagement refers to the ESG performance score of the companies.	-	DataStream
Moderator Variable	Gender Diversity	GD	GD refers to the representation of both genders on the board of directors, which is measured by the percentage of females on the board.	GD = % of females on board	DataStream
Control Variables: Firm-level factors	Financial Leverage	Lev	Financial Leverage measures how much a company depends on borrowed funds to run its operations.	$Lev = \frac{Total\ Liabilities}{Total\ Assets}$	DataStream
	Profitability	ROA	ROA measures a firm's profitability by assessing the returns generated from its assets.	$ROA = \frac{Net\ Profit}{Total\ Assets}$	DataStream
	Firm Age	Age	Age refers to the number of years since a company was established.	Age = log (firm's establishment years)	DataStream
	Firm Size	Size	Firm size refers to the scale or magnitude of a company.	Size = log (Total Assets)	DataStream
	Market-to-Book Ratio	MTB	The BMT ratio compares a firm's market value to its book value.	$MTB = \frac{Market\ Value}{Shareholder's\ Equity}$	DataStream
	The proportion of fixed assets	PPE	PPE refers to the measure of a firm's proportion of fixed assets to its total assets.	$PPE = \frac{Fixed\ Assets}{Total\ Assets}$	DataStream
Control Variables: Country-level factors	Disclosure index	Dis	The Disclosure Index is a measure reflecting the level of economic, environmental, and social disclosures that firms make in standalone CSR reports or annual reports, using GRI standards.	$Dis = \sum (Economic\ Disclosure, Environmental\ Disclosure, Social\ Disclosure)$	Obtained from La Porta *et al.* (2006).
	Book-tax conformity	BTC	This is a country-level index for the level of conformity between book and tax income. Higher scores indicate better conformity.		Obtained from Atwood *et al.* (2010)
	Ownership concentration	OC	Ownership concentration refers to the degree of shareholding concentration. A higher OC value indicates more concentrated ownership, suggesting greater control by a few shareholders.	$OC = \frac{\sum (\text{Shares Owned by Top 3 Shareholders})}{Total\ Shares}$	Obtained from Atwood *et al.* (2010)

Note: This table provides detailed definitions, formulas, and sources of data for all the variables used in this study.
Source: Author's own Analysis

2.6. Empirical Model

2.6.1. Panel Regression Model

Panel data is a combination of time series and cross-sectional data in which the same entities are followed over all periods, and their behavior is studied over a number of periods. Both fixed-effect and random-effect approaches are used to analyze such data. The fixed effect method isolates the impact of time-varying variables on the result by controlling for the effect of variables that do not change over time within an entity. On the other hand, groups or entities' unpredictability and differences are explained by the random effect. The random effect model is the most appropriate for analysis because the data in this study contain time-invariant variables. The following regression models are created to test the hypotheses:

$$AC_{it} = \alpha_0 + \beta_1 ESG_{it} + \beta_2 ROA_{it} + \beta_3 Size_{it} + \beta_4 Lev_{it} + \beta_5 Age_{it} + \beta_6 PPE_{it} + \beta_7 Disc_{it} + \beta_8 OC_{it} + \beta_9 BTC_{it} + \in_{it} \quad (2)$$

$$AC_{it} = \alpha_0 + \beta_1 ESG_{it} + \beta_2 GD_{it} + \beta_3 ESG_{it} \times GD_{it} + \beta_4 ROA_{it} + \beta_5 Size_{it} + \beta_6 Lev_{it} + \beta_7 Age_{it} + \beta_8 PPE_{it} + \beta_9 Disc_{it} + \beta_{10} OC_{it} + \beta_{11} BTC_{it} + \in_{it} \quad (3)$$

Equation 2 examines the impact of ESG on accounting conservatism, and Equation 3 explores the moderating role of gender diversity on the accounting conservatism and ESG relationship. Where AC_{it} is the Accounting Conservatism, where i and t express the ith country and the tth period, respectively. Where ROA, Size, Lev, Age, and PPE represent the firm-level control, and $Disc_{it}$, $OC_{it,}$ and ITC_{it} denote the country-level control variables. Also, ε_{it} is the residual. ESG_{it} is a company's total score based on self-reported data in the environmental, social, and corporate governance pillars. GD_{it} represents gender diversity, using the "percentage of females on the board" as a proxy to measure it.

2.7. Generalized Methods of Moments (GMM)

Reverse causality causes endogeneity bias in the estimates and can lead to erroneous inferences and improper conclusions that can obscure theoretical insights. To solve this challenge, the Generalized Method of Moments (GMM) is commonly used to estimate parameters in econometrics to cope with endogeneity. The model used in this study is a dynamic panel GMM model since in such a structure there are more parameters than the available data, or standard conditions for the Ordinary Least Squares (OLS) estimator are not satisfied (Arellano and Bond, 1991; Arellano and Bover, 1995). This approach involves using lagged values of explanatory variables as instruments. The specified GMM models for analysis are outlined below:

$$AC_{it} = \alpha_1 AC_{it-1} + \beta_1 ESG_{it} + \beta_2 ESG_{it-1} + \beta_3 ROA_{it} + \beta_4 Size_{it} + \beta_5 Lev_{it} + \beta_6 Age_{it} + \beta_7 PPE_{it} + \beta_8 Disc_{it} + \varepsilon_{it} + \beta_9 OC_{it} + \beta_{10} BTC_{it} + \varepsilon_{it} \quad (4)$$

$$AC_{it} = \alpha_1 AC_{it-1} + \beta_1 ESG_{it} + \beta_2 ESG_{it-1} + \beta_3 GD_{it} + \beta_4 GD_{it-1} + \beta_5 ESG_{it} \times GD_{it} + \beta_6 ESG_{it-1} \times GD_{it-1} + \beta_7 ROA_{it} + \beta_8 Size_{it} + \beta_9 Lev_{it} + \beta_{10} Age_{it} + \beta_{11} PPE_{it} + \beta_{12} Disc_{it} + \beta_{13} OC_{it} + \beta_{14} BTC_{it} + \varepsilon_{it} \quad (5)$$

The GMM model is defined as follows: Equation 4 tests Hypothesis 1, and Equation 5 examines Hypothesis 2. Both equations include the subscript $(t-1)$ to indicate the lagged period, respectively, and ε_{it} are the residuals.

Equation 4 is formulated to measure the effect of ESG on accounting conservatism, considering the lagged ESG performance and accounting conservatism. The use of such lagged variables reduces the need to explain the persistence of financial reporting behaviour, and it mitigates the delayed impacts of ESG initiatives.

Meanwhile, Equation 5 investigates the role of gender diversity in the ESG-accounting conservatism relationship. This approach entails both lagged terms and gender diversity to study how past values of the former affect the present relationship between gender diversity, ESG, and accounting conservatism. The advantage of this structure is that it increases the model's reliability, and the assessment of these dynamics is more comprehensive.

3. RESULTS AND DISCUSSION

3.1. Descriptive Statistics

Error! Reference source not found. represents the descriptive statistics of the variables that were used in the study. The dataset comprises 4,640 observations in the period of 2008 to 2022. The findings indicate that accounting conservatism, with an average of 0.80, has a moderate variation with a standard deviation of 0.49. ESG engagement depicts a mean score of 61.66 with the highest standard deviation, i.e., 17.87, as compared to other variables. Furthermore, return on assets averages 0.07 with a standard deviation of about 0.12, implying that most firms operate with modest profitability.

Firm size, which is measured as a natural log of total assets, has a mean of 22.83 with values ranging from 17.88 to 27.14. Moreover, the average market-to-book ratio and financial leverage are 0.80 and 0.60, with a standard deviation of 0.97 and 0.18 correspondingly. Meanwhile, the disclosure index average is 0.68, which implies relatively high transparency.

The average concentration of ownership is 0.29, which indicates that most firms involve dominant shareholders. Gender diversity on boards widely varies, with a mean of 26.06 and a high standard deviation of 26.06. The minimum value stands at 0.000, which indicates no participation of women on boards, and the maximum value reaches 66.67, indicating significant women's representation on boards. Firm age averages 3.09 with a standard deviation of 1.03, while the proportion of fixed assets and book-tax conformity has a mean of 0.46 and 0.01, respectively.

Collectively, these statistics show the diversity in the variables integrated into the study.

Table 2: Descriptive Statistics.

Variables	N	Mean	Std. dev.	Min	Max
Accounting Conservatism	4,640	0.80	0.49	-1.42	8.03
ESG Engagement	4,640	61.66	17.87	3.91	95.57
Return on Assets	4,640	0.07	0.12	-1.14	2.49
Firms Size	4,640	22.83	1.59	17.88	27.14
Market-to-Book Ratio	4,640	0.80	0.97	-4.76	6.80
Financial Leverage	4,640	0.60	0.18	0.01	1.00
Disclosure Index	4,640	0.68	0.17	0.42	0.83
Ownership Concentration	4,640	0.29	0.16	0.15	0.60
Gender Diversity	4,640	26.06	14.28	0.00	66.67
Firms Age	4,640	3.09	1.03	0.00	5.19
Proportion of Fixed Assets	4,640	0.46	0.24	0.00	1.88
Book-tax conformity	4,640	0.01	0.00	0.01	0.02

Note: This table provides the descriptive statistics of all variables; the operationalizations of the variables are given in Table 1.
Source: Author's own Analysis

Error! Reference source not found. and **Error! Reference source not found.** represent the correlation and the VIF of the independent variables to examine the presence of multicollinearity in the regression model. When the VIF is below 5, it signifies that there is low multicollinearity, though values above 5 mean that there is moderate multicollinearity, and values above 10 signify serious multicollinearity. Because the VIF of all variables does not exceed 10, which is an indicator of the lack of multicollinearity in the model and indicates the moderate correlation between variables. But for the variables having a high-VIF value, such as Disclosure Index (7.980) and Ownership concentration (6.600), respectively, some cautions are required for the interpretation of these variables. Because these variables may be overlapping in capturing the transparency or control rights of the firms, which implies that the combined presence of these variables in the model may reduce the accuracy of their individual effects.

This finding is further validated by the Pearson correlation matrix, as shown in Table 3. Most correlation values are below 0.7, indicating that there are no serious multicollinearity issues. Further, the negative relationship between the Disclosure Index and Ownership Concentration (-0.9195) is also substantial, which also confirms the high VIF values in Table 4. Also, the average VIF is obtained to be 2.620, which implies that there is no major problem of multicollinearity as the value is within a reasonable limit.

Table 3: Pearson Correlation Coefficient (2008-2022).

Variables	Market-to-Book Ratio	Accounting Conservatism	ESG Engagement	Return on Assets	Firms Size	Financial Leverage	Disclosure Index	Ownership Concentration	Gender Diversity	Firms Age	Proportion of Fixed Assets	Book-tax conformity
Market-to-Book Ratio	1											
Accounting Conservatism	-0.1059*	1										
	0.0000											
ESG Engagement	-0.1059*	-0.2238*	1									
	0.0000	0.0000										
Return on Assets	0.4053*	0.6660*	-0.0847*	1								
	0.0000	0.0000	0.0000									
Firms Size	-0.2772*	-0.5758*	0.6056*	-0.2399*	1							
	0.0000	0.0000	0.0000	0.0000								
Financial Leverage	0.1316*	0.2449*	0.1878*	-0.1189*	0.3367*	1						
	0.0000	0.0000	0.0000	0.0000	0.0000							
Disclosure Index	0.0530*	0.0502*	-0.0596*	0.1108*	-0.1253*	-0.0882*	1					

	0.0003	0.0006	0.0000	0.0000	0.0000	0.0000						
Ownership Concentration	-0.1324*	-0.1998*	0.0723*	-0.1181*	0.1493*	0.1008*	-0.9195*	1				
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000					
Gender Diversity	0.0906*	0.0272	0.3548*	0.0263	0.1047*	0.0579*	0.0524*	-0.0522*	1			
	0.0000	0.0644	0.0000	0.0736	0.0000	0.0001	0.0004	0.0004				
Firms Age	-0.0518*	-0.1066*	0.1850*	-0.0353*	0.1734*	0.0000	0.1398*	-0.1447*	0.1400*	1		
	0.0004	0.0000	0.0000	0.0161	0.0000	0.9992	0.0000	0.0000	0.0000			
Proportion of Fixed Assets	-0.1956*	-0.2306*	0.0937*	-0.1438*	0.2239*	0.0225	0.0641*	-0.0380*	-0.0758*	-0.0319*	1	
	0.0000	0.0000	0.0000	0.0000	0.0000	0.1259	0.0000	0.0096	0.0000	0.0300		
Book-tax conformity	0.0065	0.0605*	-0.0594*	-0.0313*	-0.0374*	-0.0123	-0.7010*	0.6195*	-0.1255*	-0.2388*	-0.0932	1
	0.6569	0.0000	0.0001	0.0329	0.0107	0.4016	0.0000	0.0000	0.0000	0.0000	0.0000	

Note: This table provides the correlation of all variables; the operationalizations of the variables are given in Table 1. *Indicates significance level at 5%
Source: Author's own Analysis

Table 4: Variance Inflating Factor (VIF).

Variables	VIF	1/VIF
Disclosure Index	7.980	0.125
Ownership Concentration	6.600	0.151
Book-tax conformity	2.140	0.468
Firms Size	1.970	0.508
ESG Engagement	1.840	0.543
Gender Diversity	1.200	0.831
Financial Leverage	1.150	0.872
Firms Age	1.130	0.888
Proportion of Fixed Assets	1.100	0.908
Return on Assets	1.090	0.918
Mean VIF	**2.620**	

Note: This table provides VIFs of all variables; the operationalizations of the variables are given in Table 1.
Source: Author's Own Analysis (European)

3.3. Results of Random Effect and Dynamic Panel Model of ESG and Accounting Conservatism Relationship (H1)

Error! Reference source not found. presents the results of the random effects model and estimations of the dynamic panel model for H_1 and highlights various significant predictors of accounting conservatism. First, the lag of ESG engagement has a statistically significant negative impact on accounting conservatism in both first and second-step GMM estimation. The result implies that a one-unit increase in the ESG engagement score in the prior period leads to a decrease of 0.003 units in the current accounting conservatism. This relationship is consistent with the study by Khlifi et al. (2024), which suggests that ESG engagement over time may reduce the firm's reliance on conservative accounting practices, which improves the quality of earnings and investor protection. This further demonstrates the time-lagged nature of ESG implementation, where ESG investment in the prior year enhances stakeholder trust and the reputation of the firm.

As a result, the reliance of firms on accounting conservatism as a signaling mechanism reduces, as firms with strong credentials of ESG and established trust of stakeholders can convey transparency and credibility and shift toward less conservatism in financial reporting.

On the contrary, the current ESG engagement is statistically significant and possesses a direct relation with accounting conservatism, with a coefficient of 0.002 in the Random effect model and 0.004 in both GMM estimations. This implies that a one-unit increment in ESG engagement would increase accounting conservatism by 0.2% and 0.4%. This evidence implies that the role of past ESG decreases the need to report conservatively, while current ESG engagements might generate more incentives to demonstrate ethically more cautious and transparent financial reporting, especially in the period of an active ESG transformation. In developing economies where the ESG system is still evolving, firms are encouraged to be conservative in their accounting to build trust in the initial stage of the institutionalization of ESG practices. Consistent with Ferdous et al. (2024), firms that have integrated ESG practices in their operating strategies are more

inclined to employ conservative accounting to enhance their value creation in the long term.

ROA is also statistically significant and positively associated with accounting conservatism in all three models, with a coefficient of 2.589, 2.370, and 2.400 in the respective models. The results are in line with those of Mustafa et al. (2024), which show that large firms prefer to be more conservative in their accounting methods. Moreover, changes in the size of the firm are associated negatively with accounting conservatism, with a coefficient of -0.101 (Random Effect), -0.169 (1st-step GMM), and -0.136 (2nd-step GMM).

By the method of estimation, the results indicate that a one-unit increase in firm size leads to a reduction in conservative accounting practices and imply that larger firms may prioritize aggressive reporting as a mechanism of improving their performance (Nasr and Ntim, 2018). The coefficient of financial leverage is significant and positive in all the models of specification, that is, 1.401 in Random Effect, 0.728 in first-step GMM, and 0.923 in second-step GMM. Economically, it signifies that firms with high leverage are more likely to mitigate agency issues and limit the creditor risk through conservative accounting practices (Teymouri and Sadeghi, 2020).

Moreover, other characteristics of the firm, namely Firm Age, Disclosure Index, and Ownership Concentration, show statistically significant negative correlation with accounting conservatism, with coefficients of -0.043, -2.221, and -3.075, respectively. Economically, an increase in the age of the firm by 1 year decreases accounting conservatism by 0.043 units, and this is attributed to the fact that the developed reputation of a firm eliminates the need to report conservatively (Teymouri and Sadeghi, 2020). Similarly, a one-unit increase in disclosure index decreases accounting conservatism by 2.221 units, which implies that the level of transparency may act as an alternative for conservative reporting to reduce information asymmetry (Khanagha and Parvare, 2017).

Furthermore, a one-unit increase in ownership concentration leads to a significant reduction in conservative reporting by 3.075 units. The result is consistent with the study by Lafond and Roychowdhury (2008), which suggests that when the ownership is highly concentrated, then dominant shareholders may exert pressure on managers to report higher profits in their financial reporting, which ultimately reduces accounting conservatism.

Further, the proportion of fixed assets is also significant and negatively associated with accounting conservatism, with a coefficient of 0.072 (Random Effect), 0.173 (first-step GMM), and 0.152 (second-step GMM). According to the selected estimation method, the result suggests that an increase in fixed-asset proportion leads to a decrease in conservative accounting. This is due to the collateral provided by tangible assets that reduces the requirement of creditors for conservative financial reporting (Al-Sakini and Al-Awawdeh, 2015).

Lastly, the coefficient for book-tax conformity is statistically significant in all three models and shows a direct relationship with accounting conservatism. As per the employed estimation method, a one-unit increase in book-tax conformity increases conservative accounting practices by 24.488, 64.76, and 87.010 units, respectively. In line with Bornemann (2018), the firm that aligns financial and tax reporting more accurately with its accounting becomes more conservative.

Overall, the results depict a dual effect of ESG engagement on accounting conservatism. This dynamic behavior is explained through the time-lagged response of institutions and processes of building credibility.

Therefore, H_1 is not rejected, and findings are aligned with the study by Ferdous et al. (2024), which validates that ESG engagement enhances accounting conservatism. Furthermore, based on the diagnostic tests, the validity and robustness of the estimations are supported by using the Hansen J-test (1982), and the Arellano and Bond test (1991), and reject 2nd order serial correlation.

In conclusion, the findings underscore that ESG engagement, return on assets, leverage, and firms' characteristics shape accounting conservatism significantly.

The results align with both Stakeholder theory and Agency theory. From the perspective of stakeholder theory, firms that focus more on ESG engagement may adopt more conservative reporting approaches to meet broader expectations of stakeholders, ensuring the transparency and accuracy in their financial reporting (Gerged et al. 2018).

Consistent with agency theory, ESG engagement serves as a control mechanism that helps to avoid agency problems and decrease managerial discretion (LaFond and Watts 2008; Hemingway and Maclagan 2004; Liu et al. 2024). In general, the positive correlation between ESG engagement and accounting conservatism implies that socially responsible firms report their financial statements in a conservative manner to enhance accountability in

financial reporting.

Table 5: Results of Random Effect and Dynamic Panel Model for H1.

Coefficients	Random Effect	1st Step GMM	2nd Step GMM
Accounting Conservatism$_{(t-1)}$	-	0.186**	0.143*
ESG Engagement$_{(t-1)}$	-	-0.003**	-0.003**
ESG Engagement	0.002***	0.004**	0.004***
Return on Assets	2.589***	2.370***	2.400***
Δ Firms Size	-0.101***	-0.169***	-0.136***
Financial Leverage	1.401***	0.728***	0.923***
Firms Age	-0.043***	-0.014	-0.020
Proportion of Fixed Assets	-0.072***	-0.173**	-0.152**
Disclosure Index	-2.221***	0.039	-0.433
Ownership Concentration	-3.075***	-0.922	-1.820
Book-tax conformity	24.488***	64.768**	87.010***
constant	2.036***	-0.349	-0.062
N	3,903	3,903	3,903
Arellano and Bond (2)	-	-0.720	-0.920
P-value	-	0.471	0.360
Hansen J-test	-	180.770	180.770
P-value	-	0.136	0.136
Wald test	28,828	15,383	16,282
P-value	0.000	0.000	0.000

Note: This table provides the baseline results of the Random Effect and Dynamic Panel Model. The definitions and operationalizations of the variables are given in Table 1. *** Significant at the 1% level, ** Significant at the 5% level, * Significant at the 10% level.
Source: Authors' own analysis

3.4. Results of Random Effect and Dynamic Panel Model of Gender Diversity on ESG and Accounting Conservatism Relationship(H2)

Error! Reference source not found. presents the results of the Random Effects model and estimations of the dynamic panel model for H_2 and highlights various significant predictors of accounting conservatism. The lag term of ESG engagement and gender diversity shows a significant negative relationship with accounting conservatism. A one-unit increase in the lag of ESG score decreases conservative accounting by 0.3%, suggesting active engagement of ESG practices in the prior year may reduce the reliance on current-period conservative accounting. Similarly, an increase in female representation on the board from the previous year increases the current accounting conservatism by 0.010 units and 0.007 units in 1st step GMM and 2nd step GMM, respectively, indicating that diversity in boards may promote more conservative reporting.

Furthermore, to address the mechanism of moderation, the interaction term of lag ESG engagement and gender diversity is also found to be positive but weakly significant, with a coefficient of 0.000. Despite its weak statistical significance, it has conceptual significance and can support a moderating, but not a mediating effect. In this context, gender diversity is not a mediator that channels the effect of ESG engagement but moderates it, suggesting that the direction or strength of the ESG engagement and accounting conservatism relationship varies depending on the gender diversity level on boards. This aligns with statistical expectations of moderation in which interaction terms depict changes in slope or indicate buffering effects. Specifically, the positive coefficient of the interaction term implies that the negative relationship between ESG and conservatism is buffered by gender-diverse boards and ensures more cautious financial practices despite the fact that ESG engagement may act as an indicator of less conservative accounting requirements. This finding is consistent with Risk Aversion Theory and Resource Dependence Theory, which imply that gender-diverse boards are more risk-averse and have conservative accounting behavior (Muhammad et al., 2024).

Return on assets also reveals a positive and statistically significant relation with accounting conservatism in all three models. As per the estimation approach, one-unit increase in ROA increases accounting conservatism by 2.589, 2.221, and 2.265 units, respectively, and indicates that firms with more ROA tend to adopt more conservative accounting practices to mitigate earning management incentives (Al-Sakini and Al-

Awawdeh, 2015). Change in size of firm also exhibits a negative and statistically significant association with accounting conservatism in all models and depicts that a one-unit increase in the firm's size leads to a decrease in accounting conservatism by 0.101, 0.186, and 0.158 units across the respective models. This result is consistent with Nasr and Ntim (2018), who determine that growing firms may prioritize aggressive reporting to strengthen their performance and reduce agency costs. Similar to Teymouri and Sadeghi (2020), financial leverage shows a significant positive relationship with accounting conservatism, with coefficients 1.401 (Random Effects), 0.697 (1st step GMM), and 0.807 (2nd step GMM), suggesting that a unit increase in financial leverage of a firm leads to an increase in conservative accounting practices. This finding supports the argument that firms that are highly leveraged are more likely to adopt conservative reporting to mitigate agency problems and creditor risks. Moreover, Firm Age is negatively and significantly associated with accounting conservatism in Random Effect and 1st step GMM with coefficients 0.043 and 0.028, respectively, and suggests that the need for conservative reporting reduces as the age of the firm increases due to their established reputation (Teymouri and Sadeghi, 2020).

Furthermore, other firm characteristics such as proportion of fixed assets, disclosure index, and ownership concentration show a significant negative impact on accounting conservatism. Based on the estimation method, a one-unit increase in the proportion of fixed assets may decrease 0.073, 0.161, and 0.168 units in conservative accounting practices, indicating that, due to less uncertainty in asset valuation, firms with higher asset tangibility may have greater earning manipulation flexibility (Al-Sakini and Al-Awawdeh, 2015). A one-unit increase in the disclosure index reduces accounting conservatism by 2.221 (Random Effect), 1.376 (1st step GMM), and 1.197 (2nd step GMM) units, which suggests that increased transparency may reduce the need for accounting conservatism in firms by lowering information asymmetry (Khanagha and Parvare, 2017). Similarly, a one-unit increase in ownership concentration reduces conservative practices by 3.075, 2.205, and 2.241 units. These findings are consistent with Lafond and Roychowdhury (2008), who demonstrate that dominant shareholders exert pressure to report higher earnings, which ultimately reduces conservatism in accounting practices.

Lastly, the coefficient for book-tax conformity is statistically significant in all three models and shows a direct relationship with accounting conservatism. As per the employed estimation method, a one-unit increase in book-tax conformity increases conservative accounting practices by 24.492, 35.520, and 53.023 units, respectively. In accordance with Bornemann (2018), the company that better aligns financial and tax reporting accounts more conservatively.

In general, the findings indicate that gender diversity moderates the correlation between ESG and accounting conservatism. Therefore, H_2 is not rejected but weakly supported. Furthermore, based on the diagnostic tests, the validity and robustness of the estimations are supported by using the Hansen J-test (1982), and the Arellano and Bond test (1991), and reject 2nd order serial correlation.

In conclusion, the findings highlight that ESG engagement, gender diversity, and firm-specific characteristics are the significant determinants of accounting conservatism. The moderating role of gender diversity is strongly aligned with Resource Dependence theory and Risk Aversion Theory, suggesting the contribution of gender diverse boards in the effective decision-making process by enhancing conservative financial reporting. Furthermore, the results also support the legitimacy theory by adopting conservative accounting practices when engaging in ESG in response to social pressure to maintain legitimacy before stakeholders. Overall, the results moderately suggest that integrating gender diversity into ESG initiatives strengthens stakeholder trust, as well as increases the credibility of financial disclosure, ultimately enhancing accounting conservatism.

Table 6: Results of Random Effect and Dynamic Panel Model for H2.

Coefficients	Random Effect	1st Step GMM	2nd Step GMM
Accounting Conservatism$_{(t-1)}$	-	0.239**	0.211**
ESG Engagement$_{(t-1)}$	-	-0.003**	-0.003**
Δ Gender Diversity$_{(t-1)}$	-	0.010**	0.007**
ESG Engagement$_{(t-1)}$ * Δ Gender Diversity$_{(t-1)}$	-	0.000*	0.000
ESG Engagement	0.002***	0.004**	0.004***
Δ Gender Diversity	0.000	0.006	0.003
ESG Engagement * Δ Gender Diversity	0.000	0.000	0.000
Return on Assets	2.589***	2.221***	2.265***

Δ Firm Size	-0.101***	-0.186***	-0.158***
Financial Leverage	1.401***	0.697***	0.807***
Firms Age	-0.043***	-0.028*	-0.019
Proportion of Fixed Assets	-0.073***	-0.161**	-0.168**
Disclosure Index	-2.221***	-1.376***	-1.197***
Ownership Concentration	-3.075***	-2.205***	-2.241***
Book-tax conformity	24.492***	35.520**	53.023**
constant	2.037***	1.305**	0.973**
N	3,903	3,337	3,337
Arellano and Bond (2)	-	-1.080	-0.920
P-value	-	0.281	0.357
Hansen J-test	-	242.290	242.290
P-value	-	0.179	0.179
Wald test	28,768	14,155	14,446
P-value	0.000	0.000	0.000

Note: This table provides the baseline results of the Random Effect and Dynamic Panel Model for H2. The definitions and operationalizations of the variables are given in Table 1. *** Significant at the 1% level, ** Significant at the 5% level, * Significant at the 10% level.
Source: Authors' own analysis

4. CONCLUSION

This paper investigates the impact of ESG engagement on accounting conservatism and the moderating role of gender diversity among European listed companies from 2008 to 2022, using Random Effects and dynamic panel (GMM) estimations. The results indicate that ESG engagement generally reduces the level of accounting conservatism, suggesting that socially responsible companies tend to report more transparently due to decreased information asymmetry. However, this association is not held on gender-diverse boards. Although ESG is the only one that is related to lower conservatism, it has a weak but positive correlation with gender diversity, which can suggest that diverse leadership can help avoid the decline of conservative practices. This highlights the time-lagged nature of ESG implementation, where long-term engagement can lessen conservative reporting requirements, whereas current ESG initiatives may increase the need for conservatism. The findings align with the theoretical frameworks of Resource Dependence Theory, Risk Aversion Theory, Critical Mass Theory, and Legitimacy Theory, which stress the importance of diverse and responsible governance in shaping financial reporting behavior. They also support Agency and Stakeholder theories, illustrating the dual role of ESG as both a transparency mechanism and a governance tool to regulate managerial actions in stakeholder interests.

The paper contains useful theoretical and practical insights. Theoretically, it helps to comprehend the interaction between sustainability-oriented strategies and the structure of governance in impacting the quality of financial reporting. Practically, the insights indicate that board composition is essential in firms led by ESG. Whereas ESG initiatives enhance the reputation of capital and ethical standards, gender-diverse boards can be used to ensure accountability by advertising more responsible financial reporting. Consequently, companies are recommended to avoid taking ESG and diversity policies as symbolic compliance but to consider them as a component of the overall strategy, which is expected to enhance governance and the quality of financial disclosures.

This study has practical implications that are relevant to regulators, corporate boards, and investors. To regulators, particularly in the European case with frameworks such as the Corporate Sustainability Reporting Directive (CSRD) and EU gender quota directives, there is a growing consensus that there is a need to do more than merely mandate ESG disclosures. Board diversity requirements should also be reinforced by regulatory policies because the governance structures and sustainability initiatives are also interdependent mechanisms that jointly enhance accounting quality and develop investor trust. ESG and gender diversity should not be seen as accountability checklists to corporate boards but as strategic tools to facilitate financial accountability and transparency. This is especially relevant in such industries as finance, energy, and consumer goods, where the growth of green finance requirements and increased stakeholder attention necessitates more robust oversight and risk management solutions. Finally, to investors, ESG engagement evaluation should be accompanied by board composition. A high ESG company but low

board diversity could also be exposed to the risk of earnings quality and the discretion of the managers. Conversely, various leadership systems serve as a governance protection, increasing long-term accountability and enhancing the credibility of the financial reports.

ESG strategies and board diversity are valid considerations in determining the long-term financial status and integrity of reporting of any firm, where investors need to consider these outcomes as a key criterion in determining the longevity of a firm. Similarly, policymakers and regulators must not only promote the implementation of ESG but also the structural factors, i.e., the presence of diverse board governance, which makes ESG engagement a mechanism to enhance reporting practices. Through encouraging diversity thresholds and incorporating ESG into regulatory regimes, they will be able to promote more transparent, stable, and ethically managed capital markets.

This study provides robust empirical evidence on the ESG-conservatism relationship and the moderating role of gender diversity; it is not devoid of limitations. First, gender diversity is measured by the number of female directors on the board, which is a basic representation but fails to consider other aspects such as tenure, qualification, age, and role, etc., in major committees. These elements may have a significant effect on the decision-making process. This limitation can be overcome by including more specific diversity measures and aggregating institutional factors in the future to further analyze their impact on financial disclosure. Second, the analysis is restricted to the listed companies in Europe, which limits the generalizability of the results to other institutional settings and regimes of governance. Therefore, extending the analysis to non-European emerging markets or beyond may lead to valuable comparisons of the interaction between ESG and board diversity under various regimes of government and social backgrounds. Also, future research can examine the sector variability owing to the impact of ESG engagement on accounting conservatism, which may vary by industry. As an example, companies operating in industries of varying regulatory expectations on environmental exposure or operational risks may experience different stakeholder pressures that influence their ESG strategies as well as their financial reporting practices. These distinct dynamics could impact the interaction of ESG engagement with accounting conservatism, making it essential for further research to conduct sector-based comparisons. Lastly, this paper adopts a quantitative approach using panel data and econometric models, but incorporating a qualitative technique could offer more useful insights into the internal dynamics of the decision-making process of boards. Case studies or surveys with board members could validate how gender-diverse boards may influence the ESG-conservative financial practices trade-off.

The given research highlights that not only are ESG engagement and gender diversity social requirements, but also governance drivers that influence accounting behavior. Companies actively engaged in implementing sustainability and inclusion in their governance systems have a greater advantage in providing credible reporting, developing the trust of the stakeholders, and creating long-lasting value.

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