



RESEARCH ARTICLE

The effect of environmental, social, and governance disclosure and real earning management on the cost of financing

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Abstract

This study identifies if sustainable development practices measured through ESG information disclosure are related to stakeholder confidence, leading to a lower cost of debt and equity financing. We also investigate the possible moderating role of real earnings management. We apply a fixed effects panel data analysis to 1659 firm-year observations of 177 European companies from 2010 to 2019. The results show that investors value ESG disclosure negatively and increase the cost of equity, whereas lenders value it positively and reduce the cost of debt. In addition, when the moderating effect of real earnings management is introduced, the effect of ESG disclosure on the cost of debt decreases, and the effect of ESG disclosure on the cost of equity is reinforced by increasing it. In the presence of real earnings management, investors and lenders seem to think companies use ESG disclosure to legitimise their practices or mislead financing providers.

KEYWORDS

cost of debt, cost of equity, environmental policy, ESG disclosure, real earnings management, stakeholder engagement, sustainable development

1 | INTRODUCTION

For companies, deciding how to finance their growth is very important. ESG disclosure may legitimise companies in the eyes of lenders and investors to obtain lower costs of debt and equity, or lenders and investors could perceive ESG as a cost or unreliable. The literature has typically focused on either the cost of equity or the cost of debt, but limited research considers both forms of financing. It is essential to know if the stakeholders (lenders and investors) value ESG disclosure in the same way or have opposing stances to determine how they consider this information in making decisions to lend or invest. In addition, lenders and investors could consider some practices, such as real earning management, to determine the credibility and reliability of the ESG information and set the cost of financing accordingly.

According to Mitnick et al. (2023), real earning management, which is understood as accounting manipulation, would affect the relationship between ESG disclosure and the cost of financing. Lenders and investors may think that ESG disclosure is being used to cover up misconduct and mislead stakeholders.

This research aims to identify whether ESG disclosure legitimises companies in the eyes of lenders and investors and thus obtains lower COD and COE, respectively. In addition, we examine if lenders and investors consider earning management practices in determining the credibility and reliability of the ESG information. Previous literature has mainly focused on the COE (Attig et al., 2013; Cao et al., 2015). Our study will investigate the relationship between ESG disclosure and COD and COE. It is also critical to assess whether firms use ESG disclosure to mislead lenders and investors to counteract potential

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earnings management effects and obtain a lower COD and COE and how lenders and investors perceive this. To this end, we analyse whether earnings management moderates the influence of ESG disclosure on the COD and COE.

Companies consider aspects such as the loss of autonomy when new investors enter or the level of financial risk of new debt. The cost of financing is a very relevant issue. The cost of financing includes both the cost of debt (COD) and the cost of equity (COE) (Bhuiyan & Nguyen, 2019; Hasan et al., 2017). The inability to increase finances or the cost of doing so could be caused by non-compliance with the requirements of lenders and investors (Cheng et al., 2014). Financial constraints directly limit the firm's ability to make investment decisions and influence the firm's capital structure choices (Hennessy & Whited, 2007). In addition, it should be noted that the higher the risk perception of financiers, the higher the cost of financing. Consequently, to achieve a reduced cost of financing (COD and COE), lenders and investors could demand non-financial information before deciding whether to offer the firm a lower COD and COE. Financial information disclosure would be insufficient to meet the information needs of these stakeholders and should be complemented by a sustainability disclosure. ESG reports are the most in-demand form of sustainability information (Raimo et al., 2020). They reduce information asymmetry; facilitate the assessment of potential risks related to the environment, society, and governance; and show accountability towards stakeholders, society, and the environment (Eccles et al., 2012; El Ghoul et al., 2011).

Previous research has shown that more ethical and environmental disclosure decreases equity and debt costs and can lead to increased access to financing (Cheng et al., 2014; Easley & O'Hara, 2004). In this sense, ESG disclosure is critical in determining corporate valuation and, as a result, the rate of return expected by shareholders and the cost of debt. Therefore, transparency rules and ESG disclosure can reduce a company's financing costs by reducing information asymmetry (Hassan, 2018; Lopatta et al., 2016; Xu et al., 2015). In addition, information asymmetry is likely to be more severe in firms with low ESG disclosure, and greater ESG disclosure leads to lower cost of debt (El Ghoul et al., 2011).

The effect of ESG information on lenders and investors could be different depending on certain aspects. ESG could be a signal of sustainability in the long term. Lenders and long-term investors appreciate companies with better ESG disclosure, which could have an impact on lower financing costs related to the COD and COE (Bhuiyan & Nguyen, 2019; Du et al., 2017; Hamrouni et al., 2019; Raimo et al., 2021; Suto & Takehara, 2020). On the other hand, short-term investors or lenders are likely to value ESG disclosure negatively when deciding to invest or lend, applying exclusively financial criteria (Boachie & Tetteh, 2021; Magnanelli & Izzo, 2017). In this case, ESG disclosure would increase the COD and the COE.

ESG disclosure is related to transparency and shows the company's ethical commitment. It is assumed that there should be consistency between ESG disclosure and management reliability, reducing information asymmetry and helping lenders and investors make decisions (Gerwanski, 2020). In addition, the capital market and lenders

take cash flow into account when making decisions, and significant variations in its components can generate mistrust (Orazalin & Akhmetzhanov, 2019). Real earnings management would negatively impact and affect the evaluation of investors and lenders (Hadani et al., 2011; Kothari et al., 2016). Earnings management could harm the value of the company and the perception of stakeholders, worsen the company's relations with stakeholders, and damage the image and reputation of the entity (Gras-Gil et al., 2016), thereby counteracting or weakening the effect of ESG.

Misleading practices and management should disappear when there is a strong commitment to ESG disclosure (Chouaibi & Zouari, 2022; Martinez-Martinez et al., 2021). However, companies that manipulate earnings data to show higher cash flow and profits could use ESG disclosure to cover up this manipulation to mislead investors and lenders. Earnings management, if perceived by financiers, could moderate the effect of ESG disclosure on the COD and COE. Lenders and investors could question the disclosed ESG information and alter the cost of financing (Gao, Shen, et al., 2020; Jaggi et al., 2009). Companies may disclose even more information about their ESG activities in an attempt to counter the negative effects of earnings management and could use ESG disclosure opportunistically (Jadiyappa et al., 2021) and take advantage of the reputation and legitimisation effect to cover up their manipulative management and mislead lenders and investors (Muttakin et al., 2015). Therefore, earnings management could affect the reliability and trustworthiness of ESG information. Lenders and investors may come to realise that ESG disclosures are intended to legitimise and counteract the impact of fraudulent practices.

The relationship between ESG disclosure and the COD and COE could be discussed according to different theoretical frameworks. The most frequently used are legitimacy theory, which delves into the contract between society and business, where entities seek to receive society's approval to operate through their actions (Deegan et al., 2002); agency theory, which focuses on the relationship between principal and agent, which would be appropriate if the aim was to understand the relationship between a manager and investors (Jensen, 1994); or stakeholder theory, which refers to a company's actions aimed at meeting and balancing the demands of its stakeholders (Freeman, 1999). Conversely, institutional theory encompasses and justifies the behaviours of companies from a global perspective. Institutional theory explains that companies are influenced by pressures coming from three basic pillars: regulatory, normative and cognitive. The legal domain establishes formal rules, the normative domain is understood as the set of moral and cultural norms, and the cognitive domain refers to the perception of organisational legitimacy (Koster et al., 2019; Qiao & Wu, 2019; Scott, 2008). According to this theory, companies adopt voluntary ESG standards to detect, reduce, eliminate and control the negative impact of their operations and, in this way, comply with the moral and cultural norms established with respect to business operations.

Legitimacy theory best fits our approach as it understands that ESG disclosure could be considered a strategic option for companies to show social responsibility in order to legitimise their activities and

provide a positive impression to investors and lenders. On the other hand, companies have an incentive to manage the stakeholders' perception of their image and reputation by presenting themselves in the most favourable way possible to improve or repair their corporate image in relation to society (Osma & Guillamón-Saorín, 2011). Thus, managers consider ESG information disclosure as a way to influence the stakeholders' decision-making process (Kanbaty et al., 2020). In this study, we propose a negative association between ESG disclosure and COD and COE because we expect both lenders and investors to use ESG information disclosure to reduce information asymmetry, assess risks, and, hence, lower the cost required from businesses.

The main findings are, first, that the effect of ESG on COD and COE is different, that is, lenders and investors have different objectives. The relationship between ESG and COE depends on whether investors have short- or long-term objectives. Lenders, for their part, value ESG information. Second, the existence of REM practices moderates the relationship between ESG and COE and COD. In the case of lenders, it weakens the relationship between ESG and COD, and in the case of investors, it strengthens the relationship between ESG and COE. In either case, both lenders and investors react to the existence of REM.

The study contributes to the existing literature by adding new evidence of how lenders and investors consider ESG disclosure when they decide to lend or invest, taking into account factors that can help stakeholders assess the reliability of ESG information. The research focuses on Europe, and there might be differences with other cultures and regulatory frameworks (Erragragui, 2018; Hamrouni et al., 2019; Hasan et al., 2017). The study contributes to knowledge of how legitimacy theory influences the reaction of lenders and investors to the use of ESG to counteract misleading practices.

The rest of the paper is organised as follows. The Section 2 concerns the regulatory framework of ESG and CSR reporting in Europe. The Section 3 reviews the literature and proposes hypotheses. The sample, data sources, and research methodology are discussed in Section 4. Section 5 presents the results and discussion. Finally, some conclusions are presented in Section 6.

2 | THE REGULATORY FRAMEWORK OF ESG AND CSR REPORTING IN EUROPE

Over the years, we have seen the growing interest of governments and organisations in regulating CSR and ESG issues. International organisations have put out standards, guidelines, principles, or rules to enhance and standardise this information, such as the Global Reporting Initiative (GRI) and the International Organisation for Standardisation (ISO), as have state organisations with standard-setting authority, like the Organisation for Economic Cooperation and Development (OECD) (Balzarova & Castka, 2018; Barakat et al., 2015).

Along the same lines, the EU has promoted a combination of voluntary and mandatory actions that seek to promote CSR; the guidelines are a response to the Sustainable Development Goals adopted at the United Nations Sustainable Development Summit. More

significantly, we can highlight that since July 2001, when the Green Paper 'Promoting a European Framework for Corporate Social Responsibility' was published, the European Commission has increased its communications and initiatives on corporate social responsibility (CSR) (Eberhard-Harribey, 2006). CSR legislation continued to develop, and in April 2014, the European Union enacted a law requiring 'disclosures of non-financial and diversity information' for large firms. The 2014/95/UE Non-Financial Reporting Directive went into effect on January 1, 2017, for all fiscal years beginning on or after that date. The rule was designed particularly for companies that are listed on EU markets or have major operations within the EU. According to the CSR directive, businesses must include a non-financial statement in their annual management report outlining how their 'development, performance, and position' and activities have affected 'environmental, social, and employee matters, respect for human rights, [and] anti-corruption and bribery matters'.

The wide range of international guidelines, frameworks and standards has not always been effective in managing sustainability risks with a purely voluntary approach (Camoletto et al., 2022). In the EU, concern for environmental issues has led to steps being taken to make sustainability reporting mandatory. In the near future, this will apply not only to large companies but also to small ones. Thus, the European Commission has proposed a set of European Sustainability Reporting Standards (ESRS) under the Corporate Social Responsibility Disclosure (CSRD) legislation. Companies have to apply in 2024 and publish a sustainability report in 2025.

3 | LITERATURE REVIEW AND HYPOTHESIS PROPOSAL

3.1 | The effect of ESG disclosure on the cost of debt

Previous literature has studied the COD in relation to different aspects. For example, in terms of earnings quality, it has been argued that better management practices improve external financing by obtaining lower costs (Gerwanski, 2020; Kim & Sohn, 2013; Li et al., 2022; Rahaman & Al Zaman, 2013). Similarly, firms with more timely and accurate accounting information obtain lower debt costs (Chen & Zhu, 2013; Eliwa et al., 2019). Qualitative aspects such as lawsuit risk in corporate financing (Arena, 2018) or credit risk in family firms (Gao, He, et al., 2020) have also been examined, revealing that higher lawsuit or credit rating risks lead to a higher COD.

The COD could also be related to ESG disclosure. The increasing demand for and attention paid to social and environmental reporting, which has led to increased awareness of corporate social, environmental, and reputational risks, may also be considered by lenders. There is pressure on companies to disclose ESG information (Eliwa et al., 2021), which would improve information transparency (Boiral, 2013) and decrease information asymmetry for external users. The literature regarding the relationship between ESG disclosure and COD is contradictory. ESG disclosure could reduce the COD (Cao

et al., 2015) by improving reputation (Hsu, 2012; Pérez, 2015), reducing information asymmetry (La Rosa et al., 2018; Martínez-Ferrero, Banerjee, et al., 2016; Zheng, 2021), improving earnings quality by decreasing earnings management (García-Sánchez & García-Meca, 2017), and ensuring long-term sustainability.

The cost of borrowing is related to financial risk, which is measured through credit ratings; a better credit rating usually leads to a lower COD. Although credit ratings are linked to financial indicators and corporate creditworthiness, they increasingly take into account ESG disclosures (Attig et al., 2013; Flórez-Parra et al., 2020). ESG information allows a greater assessment of the risks—social, environmental, and governance—affecting companies (Erragragui, 2018). Positive ESG scores can improve a company's credit rating, potentially leading to a reduction in its COD (Hamrouni et al., 2019; La Rosa et al., 2018; Yeh et al., 2020; Zheng, 2021; Zhou et al., 2018).

Based on legitimacy theory, ESG disclosure could be considered a strategic option to improve sustainability performance and can indirectly also improve financial performance by reducing the cost of financing. Integrating sustainability and financial information could improve management and business performance in practice (Boiral, 2013). As a result, stakeholders, especially lenders, will have a lower perception of risk and, consequently, will impose a lower COD; thus, the following hypothesis arises:

H1. There is a negative relationship between ESG disclosure and COD.

3.2 | The effect of ESG disclosure on the cost of equity

The COE is a crucial factor in long-term investment decisions (El Ghouli et al., 2011). Investors determine their required rate of return by measuring a company's risk relative to alternative investment opportunities. In investors' asset valuation models, information disclosure reduces their estimation of risks and uncertainties (Lambert et al., 2007). Disclosure reduces information asymmetry between investors and managers. Sustainability information has improved considerably in recent decades. Companies that disclose a high level of ESG information make better analysis possible, leading to a lower level of information asymmetry, which reduces the level of risk perceived by investors, which could have an impact on lowering the COE (He et al., 2013; Kazemi & Rahmani, 2013). In addition, increased transparency could decrease monitoring costs for investors, resulting in a higher rate of return on equity holdings (Lombardo & Pagano, 2002). ESG disclosure affects the image and reputation of the entity, which could have an impact on obtaining cheaper capital costs (Cao et al., 2015; Dhaliwal et al., 2014; Reverte, 2012; Zhou et al., 2018). If ESG disclosure helps to reduce the COE, firms will be more motivated to engage in it (El Ghouli et al., 2018; Ok & Kim, 2019; Tseng & Demirkan, 2021; Yoon et al., 2018).

Previous studies have focused almost exclusively on examining financial disclosure and COE (Embong et al., 2012; Ng & Rezaee, 2015;

Weber, 2018), but a significant volume of corporate disclosure today concerns sustainability. This data is not shown in financial statements and is critical to assessing disputes and operational risks and helping to determine the value of the business. Given that financial transparency has been shown to affect the COE (Dhaliwal et al., 2014), it is logical to ask how sustainability disclosure affects the COE.

Within the framework of legitimacy theory, ESG disclosure can be seen as a method to improve the company's relationship with shareholders and stakeholders by decreasing the likelihood of negative incidents or controversies that may affect the company's reputation, such as lawsuits, damaged products, or environmental scandals (El Ghouli et al., 2011, 2018). Consequently, ESG disclosure could be considered a legitimisation tool (Kim et al., 2012; Krüger, 2015). However, we have to keep in mind that if companies aim to maximise shareholder wealth, ESG disclosure inevitably entails costs. In this case, the relationship between ESG disclosure and the COE would be positive (Lins et al., 2015; Magnanelli & Izzo, 2017; Menz, 2010). If it is supposed that investors act with long-term sustainability criteria and not only short-term profitability in mind, a negative relationship between ESG disclosure and COE is expected (Chouaibi & Zouari, 2022). Investors with short-term objectives may demand a higher return or require a higher cost of capital in response to increased ESG actions because these involve costs for the company. In this case, the relationship between ESG and COE will be positive.

Following the legitimacy theory and supposing an investor has long-term sustainability objectives, the proposition is that ESG disclosure provides a better perception of the company to investors and builds trust by allowing them to assess the risks that affect or may affect companies; it can be seen as a method for improving investor relations (Cho et al., 2013). Consequently, investors might demand a lower cost of capital from companies with better ESG disclosure. Accordingly, we formulate the following hypothesis:

H2. There is a negative relationship between ESG disclosure and COE.

3.3 | The moderating effect of real earnings management on the relationship between ESG disclosure and the cost of debt and equity

Our study investigates a potential negative relationship between ESG disclosure and COE and COD based on the assumption that investors and lenders trust ESG information. One aspect that may qualify the decision or raise doubt about the reliability of the information disclosed is that stakeholders may discover that the company is managing earnings (Chouaibi & Zouari, 2022). The capital market and lenders could react to the real earnings management (REM) undertaken by firms; specifically, it could lead them to re-evaluate the reliability of ESG disclosure.

REM could affect ESG disclosure's impact, COD, and COE. REM practices seek to hide organisations' true performance and, consequently, affect the quality of reported earnings (Cohen &

Zarowin, 2010; Hong & Andersen, 2011; Zang, 2012). Conscious investors and creditors may be able to detect the impact of REM on the cost of equity and the cost of debt (Chouaibi & Zouari, 2022); thus, it has been found that the cost of equity and the cost of debt are positively associated with REM (Kim & Sohn, 2013). This implies that the market is more inclined to punish REM actions with very high equity costs and higher interest rates. In addition, distrust of a company's financial reporting can affect stakeholders' perceptions of ESG reporting and moderate its effect on the cost of equity and the cost of debt.

Companies that apply REM strategies to show better earnings and obtain lower financing costs might use ESG disclosure as a technique to conceal their manipulative activities. Following the legitimacy theory, two possibilities arise. First, companies that disclose ESG are more likely to act reasonably to maintain their good reputation and avoid the risk of litigation affecting firm value (Gras-Gil et al., 2016; Martínez-Martínez et al., 2021), so they are less likely to engage in earnings management (Kim et al., 2012). Second, ESG disclosures could be used to cover up misconduct, improve a company's image before stakeholders, or present better performance to attract investors and obtain cheaper financing (Muttakin et al., 2015). In this case, ESG disclosure is used opportunistically to deceive stakeholders (Muttakin et al., 2015; Scholtens & Kang, 2013). In this situation, REM would moderate (reinforce or weaken) the relationship between ESG disclosure and COD and COE. A demonstrated moderating effect of REM in the relationship between ESG disclosure and the COD and COE would highlight that investors and lenders penalise inconsistency between earnings management and ESG disclosure. It would indicate that lenders and investors understand that ESG disclosures are being used to legitimise and counteract the impact of fraudulent practices. This would lead to the ESG information being regarded as unreliable, resulting in a positive relationship between ESG disclosures and the cost of financing from both lenders and investors. The consistency of ESG disclosure is an important research topic to help lenders and capital market investors make decisions.

Accordingly, when companies disclose ESG practices to legitimise themselves in the eyes of creditors and investors and simultaneously use REM to show higher earnings, ESG disclosure is considered an opportunistic tool and may be perceived as such by investors and creditors. Because social standards influence investor preferences, organisations that disclose ESG may attract a larger investor base. ESG disclosure enhances a firm's reputation and reduces the cost of financing (Martínez-Ferrero et al., 2015), but, on the other hand, REM undermines the firm's reputation and raises the cost of financing. As a result, executives face a debased firm image, lower competitiveness, and greater financing costs.

In this sense, the COD should be positively related to REM, and, in turn, REM should positively moderate the relationship between ESG disclosure and the COD (Ge & Kim, 2014; Houque et al., 2017; Kim et al., 2020; Shen & Huang, 2013). Firms with lower accounting quality bear a higher COD (Bharath et al., 2008; Prevost et al., 2008) and may produce some distrust in the reliability of their sustainability information. Moreover, deviation from operations to increase profits

has a negative impact on future earnings (Cohen & Zarowin, 2010; Leggett et al., 2009; Zang, 2012) and thus on long-term sustainability.

In turn, the COE would be positively related to the degree of REM, suggesting that REM activities increase the COE because the resultant immediate increase in cash affects the firm's future cash flow (Houque et al., 2017; Kim & Sohn, 2013). REM practices have short-term objectives and, in a way, act against the firm's long-term sustainability. If we assume that investors have a long-term view, REM and ESG disclosure would have the opposite effect. In that sense, REM would positively moderate the relationship between ESG disclosure and COE. REM has a negative impact on information quality and leads to a distortion of cash flow that could affect market assessment (Hadani et al., 2011; Kothari et al., 2016). Based on the above, the following hypotheses are proposed:

H3. REM positively moderates the relationship between ESG disclosure and COD.

H4. REM positively moderates the relationship between ESG disclosure and COE.

4 | METHODOLOGY

4.1 | Data and sample

The sample consists of 1659 company-year observations from 177 European companies that were part of the FTSE4Good index from 2010 to 2019. The aim is to analyse the period of relative stability between the global economic crisis of 2007 and the 2020 pandemic. We obtained the data from the Refinitiv Eikon database and each company's financial reports. The sample does not include companies from the financial and insurance sectors (La Rosa et al., 2018; Martínez-Ferrero, Ruiz-Cano, et al., 2016). The exclusion of financial institutions is due to accounting and, in general, industry peculiarities (Anastasiou et al., 2022). The sample distribution is shown in Table 1.

4.2 | Measurement of variables

To measure ESG disclosure, we use the score given in the Refinitiv Eikon database, which is ranked from 0 to 1. The ESG score is an overall company score based on self-reported information in the environmental (ENV), social (SOC), and corporate governance (GOV) pillars. The measure provided by Refinitiv Eikon takes into account 178 indicators, where 61 are related to environmental issues (resource use reduction, emission reduction and innovation); 63 are related to human resources and society (human rights and product responsibility); and 54 are related to governance (good management practices, shareholder protection and CSR strategy). This is a quantitative measure that indicates the degree of transparency and scope in reporting ESG data. For the COD, we follow Francis et al. (2005) by calculating it as the percentage of the interest expense in year t

TABLE 1 Sample distribution by sector and country.

Sector	Number of firms by sector	Country	Number of firms by country
Electric utilities and technology	42	Netherlands	9
Textiles	6	Germany	23
Transport and infrastructure	7	UK	33
Aerospace	2	France	33
Containers and packaging	4	Swiss	10
Food and tobacco	21	Sweden	11
Metals and mining	8	Norway	4
Freight and logistics	3	Italy	9
Construction	12	Spain	11
Pharmacy and medicine	20	Portugal	3
Media	4	Danemark	3
Oil and gas	15	Austria	3
Hotels	3	Russia	11
Multiline utilities	6	Finland	4
Professional and commercial sector	5	Poland	2
Automobile	15	Belgium	4
Water	2	Greece	1
Paper and forest products	2	Czech Republic	1
REITs	1	Ireland	2
		Luxembourg	1

divided by the average interest-bearing debt during year t (Boachie & Tetteh, 2021; Yeh et al., 2020). For the COE, we use the CAPM model of Sharfman and Fernando (2008), which considers the expected return on equity as an indicator of the cost of capital. The CAPM is given by the following equation:

$$ER_i = R_f + \beta_i (ER_m - R_f)$$

where ER_i = expected return on investment, R_f = risk-free rate, β_i = investment beta (systematic risk of a security or portfolio compared to the market as a whole), and $(ER_m - R_f)$ = market risk premium.

REM is measured through abnormal cash flows (AOCF) following the proposal of Dechow et al. (1998) and according to the following equation:

$$CFO_t/A_{t-1} = \alpha_0 + \alpha_1 \times (1/A_{t-1}) + \beta_1 \times (S_t/A_{t-1}) + \beta_2 \times (\Delta S_t/A_{t-1}) + \epsilon_t$$

where CFO_t/A_{t-1} = cash flows from operating activities in year t divided by total assets in year $t-1$, A_{t-1} is the total assets in year $t-1$ so that the cash flow from operating activities does not have a value of 0 when sales and sales lag is 0, (S_t/A_{t-1}) = net sales in year t divided by total assets in year $t-1$, $(\Delta S_t/A_{t-1})$ = the change in sales of firm i (sales in year t and sales in year $t-1$) divided by total assets in year $t-1$, and ϵ_t = the residual of the regression model considered as the abnormal operating cash flow (AOCF).

Following similar studies, we introduce some financial control variables that could affect the COD and COE: specifically, the market-to-book ratio (MTB), return on assets (ROA), financial leverage (LEV), firm size (SIZE), and sector of activity (Industry). MTB measures the market valuation of the company relative to book value. Companies with high MTB could be expected to have lower financing costs to the extent that they present additional value over book value, which implies lower financial risk (Bhuiyan & Nguyen, 2019; Boachie & Tetteh, 2021; Erragragui, 2018; Hasan et al., 2017). ROA measures are included because default risk is lower for profitable firms and could reduce borrowing costs and the required rate of return (Arena, 2018; Boachie & Tetteh, 2021; Erragragui, 2018). LEV measures are also related to financial risk. Firms with higher leverage ratios have, on average, higher default risk and thus could be expected to have higher COD and COE (Hasan et al., 2017; Rahaman & Al Zaman, 2013; Tseng & Demirkan, 2021; Yeh et al., 2020). SIZE is measured by the natural logarithm of total assets. Regulatory requirements are higher for large firms than for smaller ones, and, therefore, there would be less informational asymmetry between a large firm and its lenders and investors, leading to more favourable contract terms for such firms (Boachie & Tetteh, 2021; Erragragui, 2018; Hasan et al., 2017; Tseng & Demirkan, 2021). Industry can affect the cost of financing. In the context of our research, where social and environmental factors are considered, the sectors are introduced as a control variable and take the value 1 in the case of activities performed in a sector with a strong environmental impact and 0 otherwise (Boachie & Tetteh, 2021; Rahaman & Al Zaman, 2013; Yeh et al., 2020) (see Table 2).

4.3 | Regression model

The models we propose to test the hypotheses are as follows:

$$COD_{i,t} = a_{it} + B_1 ESG_{it} + B_2 AOCF + B_3 MTB_t + B_4 ROA + B_5 LEV_{it} + B_6 SIZE_{it} + B_7 Industry + u_i \tag{1}$$

$$COD_{i,t} = a_{it} + B_1 ESG_{it} + B_2 ESG \times AOCF + B_3 AOCF + B_4 MTB_t + B_5 ROA_{it} + B_6 LEV + B_7 SIZE_{it} + B_8 Industry + u_i \tag{2}$$

$$COE_{i,t} = a_{it} + B_1 ESG_{it} + B_2 AOCF + B_3 MTB_t + B_4 ROA + B_5 LEV_{it} + B_6 SIZE_{it} + B_7 Industry + u_i \tag{3}$$

TABLE 2 Definition of variables and hypotheses.

Variables	Measurement	Model	Hypotheses
<i>Dependent variable</i>			
Cost of debt (COD)	Interest Expense _t /interest bearing debt outstanding _t	Model (1) ^a Model (2) ^b	H1 H3
Cost of equity (COE)	The required rate of return on investment from Equation 1.	Model (3) ^a Model (4) ^b	H2 H4
<i>Independent variables</i>			
Environment, social and corporate governance (ESG)	ESG score from 0 to 1		
Abnormal operating cash flow (AOCF)	Actual operating cash flow-normal operating cash flow that resulted from Equation 2.		
<i>Control variables</i>			
Market to book (MTB)	Market/book value		
Performance (ROA)	Profit/total assets		
Leverage (LEV)	Total debt/total assets		
Size (SIZE)	Natural logarithm of total assets.		
Industry (Industry)	Dummy variable equal 1 for companies in sectors with a high environmental impact and 0 otherwise		

^aModels 1 and 3 do not take into account the moderating effect of AOCF on the relationship between ESG and the cost of financing (COD and COE).

^bModels 2 and 4 consider the moderating effect of AOCF on the relationship between ESG and the cost of financing (COD and COE).

$$COE_{i,t} = a_{it} + B_1 ESG_{it} + B_2 ESG \times AOCF + B_3 AOCF + B_4 MTB_{it} + B_5 ROA_{it} + B_6 LEV + B_7 SIZE_{it} + B_8 Industry + u_i \quad (4)$$

where COD is the cost of debt, COE is the cost of equity, ESG is the environmental, social and governance disclosure measure, MTB is the market-to-book value ratio, ROA is the return on assets, and LEV is financial leverage.

The result of the Durbin–Wu–Hausman test revealed that the fixed-effects panel data analysis fits our model ($p = 0.0020$). We tested for multicollinearity, heteroscedasticity, and autocorrelation problems using the variance inflation factor (VIF), the Wald test, and the Wooldridge test, respectively. On the one hand, regarding multicollinearity, the results show VIF values between 1 and 2, which means that we do not have multicollinearity problems to correct (Le et al., 2021) (see Table 3). On the other hand, we detected problems of heteroscedasticity and autocorrelation. The null hypothesis of homoscedasticity and no autocorrelation could not be accepted since the Wald and Wooldridge tests yielded a p -value of 0.000. Likewise, endogeneity was tested for by means of the Hausman test, and the results ($p = 151.5311$) show that the sample did not present endogeneity problems.

To avoid the above problems of heteroscedasticity and autocorrelation, which make the panel fixed effects regression model inapplicable, we used the generalised least squares regression model (FGLS) to estimate (Equations 3–5). FGLS allowed us to obtain robust estimates in the presence of heteroscedasticity and contemporaneous correlation between variables (Arco-Castro et al., 2023) and introduce the moderating effect of real earnings management by multiplying AOCF with ESG disclosure (Equation 4 for COD and Equation 6 for COE, respectively).

5 | RESULTS AND DISCUSSION

The descriptive statistics of the variables are shown in Table 3.

As for the dependent variables, the results reveal that the average COD and COE are relatively equal at 11.45% and 11.68%, respectively.

The mean value of the ESG variable suggests that most of the companies in our sample are committed to ESG disclosure. According to the mean AOCF, most companies in the sample manage real earnings by originating abnormal operating cash flows.

Table 4 shows the bivariate correlations between the variables.

COD and COE are positively and significantly related, indicating that the market may consider the COD to establish the cost of capital. Note that the COD may be an indicator of perceived financial risk for investors. COD and ESG information has a statistically significant negative relationship (-0.0356). However, COE and ESG disclosure have a statistically significant positive association (0.0195). These results show that lenders and investors have opposing valuations of ESG disclosure. AOCF has a significant positive correlation with COD (0.0537) and COE (0.0090), indicating that the cost of funding increases when lenders and investors observe earnings management practices by companies. It is noteworthy that AOCF is positively and significantly related to ESG disclosure, showing that the greater the earnings management, the greater the ESG disclosure, perhaps to counteract the impact of unethical practices.

Table 5 shows the results obtained from the regression analyses.

Regarding COD before accounting for the moderating effect of AOCF, Model 1 shows a negative and statistically significant relationship between the explanatory variable ESG disclosure and COD, verifying H1 (Bhuiyan & Nguyen, 2019; Raimo et al., 2021; Yeh

TABLE 3 Descriptive statistics of the variables ($n = 1659$).

Variable	Media	SD	Min	Max	VIF
COE	0.1168	0.1055	0.0010	1.1484	
COD	0.1145	0.9567	0	27.4575	
ESG	0.7205	0.1677	0.0833	1	1.89
AOCF	-0.7204	0.5931	-8.1018	0.7044	1.00
MTB	2.7995	4.0746	-83.617	45.3840	2.11
ROA	6.1329	5.6240	-19.85	48.633	2.38
LEVERAGE	27.4025	14.975	0	113.72	1.53
SIZE	17.0670	1.0476	14.6006	20.1201	1.14
Industry	0.5692	0.4953	0	1	1.02

TABLE 4 Correlations between variables.

	COD	COE	ESG	AOCF	MTB	ROA	LEV	SIZE	IND
COD	1								
COE	0.0037*	1							
ESG	-0.0356*	0.0195*	1						
AOCF	0.0537*	0.0090*	0.0727*	1					
MTB	-0.0051	-0.0255	0.0097	-0.1306*	1				
ROA	0.0022	-0.0110	-0.0531*	-0.1569*	0.3873*	1			
LEV	0.0768*	0.1247*	0.0315	0.3368*	-0.0592*	-0.2416*	1		
SIZE	-0.0363	0.0073	0.3849*	0.2008*	-0.2551*	-0.1945*	0.0715*	1	
IND	-0.0143	-0.0120	0.0829*	0.0159	0.0451*	0.1186*	0.0815*	-0.0777*	1

Note: Significance levels: * $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$.

et al., 2020; Zheng, 2021). This implies that companies with higher ESG disclosure pay lower interest rates on their debt. A positive relationship between AOCF and COD is also apparent, indicating that when lenders observe abnormal outcomes, they increase the cost of financing (Kim et al., 2020; Shen & Huang, 2013). In Model 2, AOCF is introduced as a moderating variable. The negative effect of ESG disclosure on the COD remains upon introducing AOCF as a moderating variable, although it decreases in significance, which means that the moderating effect of AOCF adjusts but does not fully counteract the effect of ESG disclosure on the cost of borrowing (Bharath et al., 2008; Prevost et al., 2008), disproving H3. Although the incidence decreases, the negative relationship between ESG disclosure and COD remains, indicating that ESG disclosure distorts lenders' perception and is used opportunistically to counteract the potential effect of earnings management. Even if the company conducts earnings management, lenders rely more on the quality of information from companies committed to ESG disclosure, negatively impacting the COD.

As for COE, Model 3 shows a positive and significant relationship between the explanatory variable ESG disclosure and COE. The results show that investors demand higher COE from companies with a higher level of ESG disclosure, disproving H2 (Lins et al., 2015; Magnanelli & Izzo, 2017; Menz, 2010). These results may reflect investors

having a short-term view and not valuing ESG information more oriented to long-term sustainability or distrusting such information, perceiving it as a way to hide or counteract conflicting actions. A positive and significant relationship between AOCF and COE is observed, indicating that investors penalise earnings management practices (Houque et al., 2017; Kim & Sohn, 2013). The market demands a higher risk premium as a result of the additional risk caused by real earnings management activities. As a result, the COE increases. In Model 4, we incorporate AOCF as a moderating variable and, as expected, AOCF moderates the effect of ESG disclosure on COE (Houque et al., 2017; Kim & Sohn, 2013), proving H4. The fact that the entity manipulates its operating cash flows reinforces the investors' stance by increasing COE. When AOCF exists, the results seem to confirm that investors understand that ESG disclosure is an attempt to hide accounting manipulations. Earnings management entails a loss of information quality, and ESG disclosure, in turn, tries to disguise or hide this bad practice. The dampening effect of earnings management on ESG disclosure leads to a higher COE.

In terms of control variables, LEV has a negative impact on the cost of financing, both in the case of COD and COE, possibly indicating that investors obtain advantages from indebtedness and lenders could decrease the COD whether or not the company regularly pays off all of its commitments (Hasan et al., 2017; Tseng &

TABLE 5 Regression analysis results.

	COD		COE	
	Model 1	Model 3	Model 2	Model 4
ESG	-0.06242 -4.11***	-0.51728 -2.02***	0.015792 1.13*	0.026 1.65**
ESG × AOCF		-0.50506 -1.57*		0.01313 2.08***
AOCF	0.01575 4.22**		0.006705 1.72*	
MTB	-0.0006 -0.95	-0.000002 -0.02	-0.00041 -1.4	-0.00034 -1.18
ROA	-0.00043 -0.85	-0.00544 -0.97	-0.00065 -1.41	-0.00067 -1.46
LEVERAGE	-0.0007 -3.51***	-0.001011 -0.39*	-0.00097 -4.43***	-0.000997 -4.28***
SIZE	0.001857 0.82	0.025631 0.59	-0.00123 -0.5	-0.00163 -0.68
Industry	-0.00946 0.00473	0.049961 0.36	0.0000006 0.01	0.000367 0.06
_cons	0.171459 4.18***	-0.15861 -0.19***	0.164494 3.65***	0.157504 3.49***
Wald chi ² (7)	34.32***	74.4***	25.33***	41.09***
Prob > chi ²	0.0000	0.0000	0.0000	0.0000

Note: Significance levels: * $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$.

Demirkan, 2021; Yeh et al., 2020). The ROA and MTB ratios do not affect the cost of funding, nor does the size of the entity or the sector in which the company operates have an impact on the models.

6 | CONCLUSION

Previous literature has shown that financial transparency affects the cost of financing. This study attempts to identify how sustainability disclosure affects COD and COE. Although a priori, one might think that financiers evaluate companies by taking into account the same parameters and, therefore, would have the same policies and requirements regarding ESG disclosure and transparency, the regression results indicate that the valuation of ESG disclosure and its effect on the cost of funding is different for lenders and investors. This has practical implications for companies when seeking finance.

Lenders value ESG disclosure positively, reducing COD (Bhuiyan & Nguyen, 2019; Hamrouni et al., 2019; Yeh et al., 2020; Zheng, 2021). ESG information allows a greater assessment of the risks—social, environmental, and governance—affecting companies (Erragragui, 2018). Its disclosure results in an improvement in a company's credit rating, which is related to a reduction in its COD (Hamrouni et al., 2019; La Rosa et al., 2018; Yeh et al., 2020; Zheng, 2021; Zhou et al., 2018). On the other hand, investors value ESG disclosure negatively and respond by increasing the COE (Lins et al., 2015; Magnanelli &

Izzo, 2017; Menz, 2010). Better ESG information disclosure provides a better perception of risks that affect or may affect companies and decreases information asymmetry (Cho et al., 2013). This situation should have a negative effect on COE. However, investors demand a higher cost of capital from companies that have better ESG disclosure. Perhaps investors or investment funds investing in companies listed in sustainability indices are only looking for returns on their investments, and a higher volume of ESG actions may be perceived as counterproductive to short-term profitability.

According to our results, lenders and investors have different views on ESG disclosure. While investors have a negative assessment of ESG disclosure, lenders perceive it as a tool that decreases information asymmetries and allows for better risk measurement. This raises the question of what happens when trust in the information disclosed is affected. The presence of REM modifies the degree of confidence that ESG information generates. From a legitimacy theoretical construct, ESG is seen by investors and lenders as a tool the company uses to counteract the negative effects of REM.

Both lenders and investors seem to perceive the existence of REM as an indicator of bad practices that affect the impact of ESG information on financing costs, reducing its relevance (Houque et al., 2017; Kim & Sohn, 2013). Moreover, the correlation table (Table 4) shows a positive relationship between REM and ESG, indicating that ESG is used to counteract the effects of earnings management and improve the company's image. Thus, when the moderating



effect of REM is introduced, it is observed that in the case of the COD, the existence of REM decreases the effect of ESG disclosure on the COD, although the effect is still negative. There is some distrust, but ESG disclosure still has a negative effect on the COD. In the case of the COE, the existence of REM reinforces the effect of ESG disclosure on the COE, increasing the cost of capital. Investors, perhaps with a short-term view, demand that the higher the investment in ESG practices, the higher the returns. In the case of investors, short-term objectives take precedence over long-term objectives more related to ESG disclosure. If the possible mistrust that REM practices may arouse is added, the positive relationship between ESG and COE is reinforced.

Therefore, the results reveal that lenders and investors have opposing views on ESG disclosure. While investors value ESG disclosure negatively, lenders perceive it as a tool that decreases information asymmetries and makes it possible to measure risks better. This may be modified by European-level regulations on sustainable finance, which require investors and investment funds to invest following sustainability criteria.

One contribution of this work is to provide an indicator that measures the relationship of ESG disclosure with financial indicators, in this case, the cost of financing. Our research contributes to the debate on whether ESG disclosure increases, decreases, or is neutral in terms of firm value by demonstrating that, under the umbrella of legitimacy theory, ESG disclosure leads to a reduction in the COD but not in COE because investors seem to have other objectives, namely to receive a higher remuneration (higher COE) for their funds. A contribution of the paper, in the legitimacy theory framework, is that the positive correlation between ESG and REM shows managers may seek to improve their image and reputation through ESG disclosure to counteract or cover up their manipulative practices and influence the perception of lenders and investors to obtain lower financing costs and a better image.

The findings of this study have a number of practical implications. First, our findings should make executives more committed to ESG disclosure. Not only does conducting such activities contribute to society at large, but it also benefits the company by reducing the COD. On the other hand, managers who disclose a large amount of ESG information should be mindful of the company's dependence on investors, as investors do not value ESG information and, therefore, demand a higher rate of return. Managers must take into account the different interests of lenders and investors and apply ESG information disclosure practices that cover the needs of both, especially strengthening the relationship with investors since they regard ESG information negatively. This may change over time as there is institutional interest in promoting sustainable finance and the investment of long-term investors.

This research highlights that integrating sustainability and financial information could improve management and business performance in practice (Boiral, 2013). The consistency of actions in the various areas of the company will be made possible by the existence of financial and sustainability indicators. Managers who employ REM use the disclosure of ESG information opportunistically to cover their misconduct. However, linking manipulation indicators such as REM

and ESG disclosure can eliminate inconsistencies between both types of practices, as both affect the ethical commitments that the company must assume to meet the demands of stakeholders.

Some of the study's limitations include the small sample size (177 companies) and the focus on a sustainability index over a specific period, which may affect the generalisability of the study. Our sample also only considers European countries and could be extended to non-European countries and companies not listed in sustainability indices. Likewise, our measurements of COE, COD, and REM allow for other possibilities. We have considered earnings management as a moderator variable, but other factors could affect this relationship. Therefore, future studies can apply other models, although the authors' measurements have been widely used in the literature.

We propose to investigate a larger sample in future research. In addition, the study could be replicated in different countries, such as emerging and less developed countries, where interest rates and perceptions of ESG efforts may differ, resulting in various implications. It would be very interesting to do a study based on the work of EFRAG to see the true differences between voluntary and compulsory practices. We also propose future research to investigate various moderating and mediating factors that may influence the relationship between ESG, COE, and COD.

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