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How Institutional Environments Shape the ESG–Growth Relation: Evidence From Europe

Laura Bango-López¹ | Cristina Gutiérrez-López¹  | Paula Castro¹  | María Belén Lozano-García² ¹Universidad de León, León, Spain | ²IME (Instituto Multidisciplinar de Empresa), Unidad de Excelencia Gestión Económica Para la Sostenibilidad GECOS, Universidad de Salamanca, Salamanca, Spain**Correspondence:** Cristina Gutiérrez-López (cristina.gutierrez.lopez@unileon.es)**Received:** 11 November 2025 | **Revised:** 18 February 2026 | **Accepted:** 27 March 2026**Keywords:** ESG performance | growth opportunities | institutional environment | Quintuple Helix

ABSTRACT

As global financial markets increasingly integrate non-financial criteria, companies are reinforcing the strategic role of sustainability and its impact on market value, although this cannot overlook how different institutional structures shape investor perceptions. This study examines (i) whether firms with higher environmental, social and governance (ESG) performance are perceived by markets as having greater future growth opportunities, and (ii) how institutional environments, measured through the dimensions of the Quintuple Helix Model (QHM), namely the economic, educational, political–legal, cultural and environmental systems, condition this relationship. Based on a panel of European listed companies over the 2013–2023 period, we find that companies with stronger sustainability performance are generally associated with higher growth potential, suggesting that ESG engagement is recognized by investors as a relevant dimension of organizations' expectations. The analysis also reveals cross-country differences in this association, consistent with the idea that markets interpret sustainability through their own institutional contexts.

1 | Introduction

In recent years, corporate sustainability has evolved from a voluntary practice into a central element of worldwide economic governance. International organizations and governments have intensified their efforts to align business activity with the United Nations 2030 Agenda for Sustainable Development (United Nations 2015), which promotes a sustainable, inclusive and resilient model of global growth. Within this framework, Europe has taken a leading role through the European Green Deal (European Commission 2019), which has fostered the development of binding regulations such as the Sustainable Finance Disclosure Regulation (SFDR) and the Corporate Sustainability Reporting Directive (CSRD), aimed at enhancing transparency, accountability and comparability in corporate sustainability practices. These regulatory advances, together with growing societal expectations, have transformed sustainability from a

reputational concern into a strategic requirement for firms seeking to remain competitive in markets.

Accordingly, European companies have increasingly incorporated ESG practices into their corporate strategies, acknowledging that sustainability is no longer peripheral but central to sustained competitive advantage and designed to reduce risks, attract long-term investors and reinforce stakeholder trust (Bénabou and Tirole 2010; Brooks and Oikonomou 2018). While in parallel, investors are integrating ESG information into their valuation processes to better capture organizations' prospects and growth potential (Pagano et al. 2018; Kräussl et al. 2024; Derrien et al. 2025). Given that ESG standards are socially constructed and embedded in national regulatory frameworks, norms, and market practices, their meaning and economic implications are inherently shaped by institutional environments. As a result, the extent to which ESG performance translates into

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market-perceived growth opportunities is likely to vary across countries, depending on how institutional contexts shape investor expectations and the strategic value of sustainability initiatives (Ioannou and Serafeim 2015). However, the extent to which such initiatives are rewarded by markets remains a matter of debate. Prior evidence shows that ESG engagement can improve firms' valuation by reducing information asymmetry and enhancing investor confidence (Cheng et al. 2014). Even so, results are far from uniform across contexts since markets may interpret ESG performance differently depending on institutional pressures, regulatory maturity and expectations (Jackson and Deeg 2008; Kaufmann and Lafarre 2021).

Against this backdrop, a comprehensive understanding of the way companies' ESG performance shapes market-perceived growth opportunities and how this relationship varies across institutional environments remains limited. To address these gaps, we first assess whether stronger sustainability performance is associated with higher market-based expectations of growth, and second examine how country-level institutional characteristics moderate this association by drawing on the QHM (Carayannis and Campbell 2010; Carayannis et al. 2012) to capture the influence of the economic, educational, political-legal, cultural, and environmental systems on the strategic and market relevance of organizations' ESG performance. Such an approach recognizes that this performance does not occur in isolation but is embedded within broader institutional contexts. Institutional pressures, arising from both formal institutions and informal norms (Campbell 2007; Testa et al. 2018), decisively condition how firms engage with sustainability and how markets interpret such efforts (Chen, Chen, et al. 2025; Lee et al. 2025; Reverte et al. 2025).

To empirically test our research objectives, we employ a longitudinal dataset of European listed firms spanning 2013–2023 and estimate panel regression models using robust ordinary least squares (OLS) as the baseline specification. The analysis first confirms that companies with higher ESG performance are generally associated with greater market-perceived growth opportunities, providing evidence that sustainability engagement signals sound management and long-term orientation. Second, the results reveal that institutional environments play a conditioning role: the positive association between ESG performance and market valuations of future growth tends to weaken in countries where sustainability is more developed and institutionalized. Conversely, in institutional contexts less conducive to sustainability, ESG practices tend to be more visible and valued by investors, highlighting that the market relevance of ESG performance ultimately depends on cross-national differences in institutional development (Krueger et al. 2024; DasGupta and Roy 2023).

Our study contributes to the stream of research on sustainability and market outcomes by investigating how organizations' ESG performance relates to investors' perceptions of growth potential across diverse institutional environments. Despite extensive evidence on the relationship between ESG performance and market outcomes, there is still limited understanding of how ESG performance is reflected in investors' forward-looking growth expectations and how this relationship varies across institutional contexts. Building on prior evidence on the market

recognition of sustainability (Van Beurden and Gössling 2008; Friede et al. 2015; Gillan et al. 2021; Huang 2021; Khan 2022; Rahat and Nguyen 2024; Khan et al. 2024), we extend this line of research in two main ways: by introducing a market-based approach that reflects investors' forward-looking expectations, offering a more dynamic comprehension of how ESG performance is valued and by employing the QHM as an integrative framework to examine how institutional contexts influence the ESG–valuation relationship.

The remainder of this work is organized as follows. In Section 2, we review the previous literature and develop the research hypotheses. In Section 3, we describe the methodology and explain the proposed models. Section 4 presents and discusses the results. Finally, Section 5 contains the conclusions.

2 | Literature Review and Hypotheses

2.1 | ESG Performance and Market-Perceived Growth Opportunities

The growing attention to ESG practices has led firms to integrate them into their corporate strategies to meet stakeholders' expectations and enhance firm performance (Friede et al. 2015; Chininga et al. 2024). The global expansion of responsible investment also accounts for the heightened interest in sustainability (Duque-Grisales and Aguilera-Caracuel 2021), which has become progressively institutionalized (Schanzenbach and Sitkoff 2020; Chen et al. 2023) and promoted by regulators, stock exchanges, and investors, consolidating its position as an international standard in markets (United Nations Sustainable Stock Exchanges Initiative [UN SSE] 2021).

Among the organisational theories that explain why companies adopt ESG strategies, stakeholder theory (Freeman 1984) emphasizes that corporate objectives should transcend shareholder value maximization (Bissoondoyal-Bheenick et al. 2023) to encompass the broader interests of diverse stakeholder groups (Mahajan et al. 2023; Awa et al. 2024). In this context, ESG practices operate as a strategic mechanism to reinforce trust, foster long-term resilience, and generate tangible benefits that ultimately contribute to firm performance (Bénabou and Tirole 2010; Amin and Tauseef 2022), within a dynamic process that requires balancing competing interests to enhance the value created through ESG engagement (Velte 2017). However, agency theory (Jensen and Meckling 1976) offers a contrasting view by underscoring the potential conflicts arising from managerial discretion and the prioritization of non-financial goals over shareholder interests (Friedman 1970). From this perspective, ESG initiatives may reflect managerial attempts to improve personal reputation without clear shareholder returns (Petrenko et al. 2016), although they can also generate sustainable value by strengthening risk management and organizational adaptability (Ortiz-de-Mandojana and Bansal 2016; Liu et al. 2024; Wang et al. 2024).

Complementing these conceptual lenses, signalling theory (Spence 1973) views ESG ratings as a means to convey organizations' commitment to sustainability, thereby reinforcing investor confidence (Billio et al. 2021). Legitimacy theory

(Suchman 1995) interprets ESG disclosure as a strategy to meet social and regulatory expectations, ensuring continued acceptance (Brammer and Pavelin 2006; Hahn and Kühnen 2013; Jiang et al. 2024). Reputation theory (Fombrun 1996) emphasizes how strong ESG performance can enhance corporate image and prestige, nurturing durable competitive advantages through stakeholder trust and recognition (Ioannou et al. 2016; Fatemi et al. 2018).

At a broader level, institutional theory (Meyer and Rowan 1977; Scott 1995, 2005) complements these organisational views by underscoring the role of institutional environments in shaping ESG-related outcomes. Companies operate under both formal and informal institutional pressures embedded in political, economic, social and cultural spheres (Ntim and Soobaroyen 2013; Orazalin and Mahmood 2021), which encourage the adoption of sustainability practices aimed at improving transparency and investment decisions (Chininga et al. 2024) while also driving firms toward similar structures and initiatives in environments where regulations and standards are relatively homogeneous (DiMaggio and Powell 1983). Yet these isomorphic tendencies are counterbalanced by cross-country differences in institutional contexts, as national regulations, stakeholder expectations and environmental priorities condition the extent of organizations' commitments (Nguyen et al. 2015; Krueger et al. 2024) and the perceived legitimacy and effectiveness of ESG performance (Campbell 2007; Jackson and Deeg 2008; Kaufmann and Lafarre 2021).

This cross-national diversity, together with the growing institutional and market attention to sustainability, has spurred an extensive body of research analysing how ESG performance influences corporate results. Overall, prior evidence largely supports a positive link between sustainability performance and financial and market outcomes (Van Beurden and Gössling 2008; Friede et al. 2015; Gillan et al. 2021). These patterns also hold when considering ESG performance in its different dimensions, where environmental practices tend to reduce costs and risks while enhancing reputation and access to sustainability-oriented markets (Hallikas et al. 2020; Hermundsdóttir et al. 2021; García-Meca et al. 2025), social initiatives contribute to well-being, diversity and participation, improving employee commitment and innovation (McWilliams and Siegel 2000; Edmans 2011; Mohammad and Wasiuzzaman 2021), and sound governance mechanisms reinforce transparency, investor confidence and access to financing (Black et al. 2006; Huang et al. 2022).

Building on these findings, the literature has evolved from accounting-based indicators to market-based assessments that capture investors' reactions to sustainability engagement, with evidence demonstrating that companies with stronger ESG performance tend to be more highly valued, as markets reward material and transparent sustainability efforts while penalizing weaknesses or irrelevant initiatives (Khan et al. 2016; Fatemi et al. 2018; Aydoğmuş et al. 2022). This shift reflects how the rising prominence of ESG has not only transformed corporate strategies but also reshaped the criteria investors use to assess firm value (Amel-Zadeh and Serafeim 2018). Following this evolution, investors increasingly rely on ESG ratings provided by specialized agencies as standardized benchmarks to evaluate organizations' growth potential (Pagano et al. 2018), perceiving

ESG performance not only as evidence of sound management practices but also as a signal of sustained growth and strategic prospects (Lian and Weng 2024). This market interpretation aligns with Myers' (1977) view that a substantial part of firm value reflects expectations about growth opportunities rather than existing assets, highlighting the forward-looking nature of market valuation.

Taken together, prior research suggests that ESG performance has become an essential dimension of companies' strategic orientation and a key element influencing investors' perceptions, reflecting the increasing recognition of sustainability as a factor contributing to market-based expectations of growth. Accordingly, our Hypothesis 1 is posed as follows:

Hypothesis 1. *Higher ESG performance is positively associated with market-perceived growth opportunities.*

2.2 | Effect of Institutional Environment on ESG Performance and Market-Perceived Growth Opportunities

In the European context, where environmental and social challenges have become gradually pressing, there is still limited understanding of how institutional environments shape firms' adoption of ESG practices. Building on institutional theory, the literature emphasizes that institutional contexts condition both internal decision-making dynamics and the expectations stakeholders project onto companies (Jackson and Deeg 2008; Gunarathne and Lee 2018), thereby influencing their strategic responses in sustainability (Campbell 2007; Kaufmann and Lafarre 2021; DasGupta and Roy 2023; Lee et al. 2025).

To capture this complexity in a structured way, earlier studies often relied on the national business systems framework developed by Whitley (1999), which highlighted political, educational, financial, and cultural domains as key determinants of corporate behaviour. While influential, this perspective overlooked the natural environment and thus provided only a partial account of the institutional forces defining organizations' engagement with sustainability. More comprehensive approaches have since emerged, most notably the QHM proposed by Carayannis and Campbell (2010), which explicitly incorporates ecological considerations alongside other institutional dimensions. This model articulates five interdependent systems that configure the institutional environment of each country: educational, economic, political-legal, cultural, and environmental. Their interaction functions as a mechanism that generates institutional frictions governing how ESG performance translates into market expectations of growth (Matten and Moon 2008; Li et al. 2025). Each of these institutional systems contributes differently to this dynamic and is therefore examined in turn to propose the five moderating hypotheses.

As a starting point, the educational system, often reflected in higher levels of public investment in education, promotes the formation of a citizenry that is more informed, critical and socially demanding (García-Meca et al. 2025). Its transformative role has been underscored by prior research, which reveals how the development of cognitive and formative skills fosters greater

awareness of social and environmental issues (Rosati et al. 2018), which in turn raises the standards by which firms' ESG performance is assessed and increases the legitimacy threshold required for such initiatives to elicit a positive market response (Tu and Guo 2024). Under such conditions, the risk of being accused of green washing intensifies, exposing companies to potential reputational and financial penalties (Pears et al. 2023). Consequently, even reasonable levels of sustainability engagement may be judged insufficient, limiting their ability to project as genuine growth opportunities (Hawn and Ioannou 2016). This suggests that robust educational systems, by elevating scrutiny and tightening acceptance barriers, may weaken the extent to which ESG performance translates into market-perceived growth opportunities. Therefore, our Hypothesis 2 is as follows:

Hypothesis 2. *The ability of firms to translate ESG performance into market-perceived growth opportunities is weaker in countries with higher levels of education.*

Economic system can be captured through the level of national economic growth (Reverte et al. 2025). In more advanced economies, institutional environments tend to be more consolidated and resources available to address sustainability challenges are broader (Rosati and Faria 2019). Prior studies show that greater national wealth (Baughn et al. 2007) and higher levels of economic development (Welford 2005) are associated with a stronger propensity among companies to integrate sustainability into their strategies. This articulation between economic context and ESG initiatives not only shapes the degree of adoption of sustainable practices but also determines their impact on corporate value. Evidence suggests that in more developed economies, organizations are better able to translate ESG engagement into corporate performance, thereby signalling stronger growth potential as perceived by investors (Hwang et al. 2024). Given that economic development appears to promote both the implementation of ESG practices and their capacity to generate future value, it becomes relevant to examine whether the national economic system strengthens the relationship between ESG performance and market-perceived growth opportunities. Extending this logic, our Hypothesis 3 is as follows:

Hypothesis 3. *The ability of firms to translate ESG performance into market-perceived growth opportunities is stronger in countries with higher levels of economic development.*

The political-legal system is commonly understood as providing the legal and institutional foundations upon which firms' sustainability reporting commitments are built (De Villiers and Marques 2016). This institutional dimension is commonly assessed through the World Bank's Worldwide Governance Indicators (WGI), which evaluate the quality of national political-legal frameworks. When these environments are stronger, ESG practices tend to become progressively institutionalized, often treated as regulatory requirements rather than voluntary strategic choices (Aguilera et al. 2007), thereby producing coercive isomorphism and a homogenization of corporate responses (DiMaggio and Powell 1983). In such contexts, sustainability engagement is perceived as a formal obligation imposed by regulation rather than a discretionary commitment, reducing companies' capacity to differentiate strategically through ESG initiatives (Jackson and Apostolakou 2010).

Consequently, when these practices arise primarily from institutional pressures, their legitimacy-enhancing potential is significantly weakened (Lee et al. 2024), undermining their role as credible signals of authenticity and diminishing their capacity to project growth potential in the eyes of investors (Pandey et al. 2024). Accordingly, it can be expected that more developed political-legal systems weaken the ability of ESG performance to translate into market-perceived growth opportunities. In light of these considerations, our Hypothesis 4 is as follows:

Hypothesis 4. *The ability of firms to translate ESG performance into market-perceived growth opportunities is weaker in countries with stronger political-legal systems.*

The cultural system can be conceptualized as embodying the identity traits of a society, encompassing its lived experiences, traditions, shared practices, collective mindsets and common values (Carayannis and Campbell 2010). Operationalization of the cultural system typically relies on Hofstede's cultural dimensions (Hofstede et al. 2010), which capture dominant societal value patterns. As an informal institution, national culture can either facilitate or hinder the pressures toward the adoption of ESG practices, thereby influencing the extent to which sustainability norms are embraced (Caprar and Neville 2012). Prior research shows that national cultural traits significantly explain cross-country differences in ESG performance (Ringov and Zollo 2007; Dangelico et al. 2020), as they condition individual and organizational willingness to engage with sustainability practices (Muttakin et al. 2022). In contexts where sustainability is deeply embedded in collective ethics and social expectations, ESG engagement tends to be perceived less as a source of strategic differentiation and more as a moral obligation (Forcadell et al. 2023). This cultural internalization creates highly demanding environments in which firms are evaluated under stricter ethical standards and only genuinely transformative initiatives achieve legitimacy (Shin et al. 2023). As a result, even reasonably solid ESG performance may be viewed as insufficient or merely symbolic, undermining its signalling value as a credible marker of competitive differentiation or long-term vision (Forlano et al. 2025). This erosion of symbolic value fosters institutional convergence across companies and further constrains the potential of ESG to operate as a driver of market-perceived growth opportunities (Xia et al. 2023). Given that national cultural values shape societal expectations and condition the legitimacy of corporate sustainability initiatives, it is reasonable to assume that in societies where prevailing cultural values impose stricter expectations, the ability of ESG performance to translate into market-perceived growth opportunities is weakened. Consistent with this argument, our Hypothesis 5 is as follows:

Hypothesis 5. *The ability of firms to translate ESG performance into market-perceived growth opportunities is weaker in countries where prevailing cultural values impose stricter expectations on corporate sustainability practices.*

The environmental system represents the natural capital of nations, encompassing natural resources and biodiversity that are recognized as a strategic foundation for advancing truly sustainable development (Carayannis et al. 2012). Measurement of the environmental system often draws on the Environmental Performance Index (EPI), which evaluates national performance

in managing and protecting natural capital (Luo 2019; Luo and Tang 2022). In countries where environmental policies are highly consolidated, ESG initiatives risk being perceived primarily as legal compliance rather than strategic decisions (Lee et al. 2024), thereby constraining their ability to project leadership or forward-looking vision (Jackson and Apostolakou 2010). This perception reduces the scope for reputational recognition of incremental improvements in ESG performance, since markets already anticipate stringent environmental standards and only respond positively to initiatives that are profoundly transformative (Le et al. 2025). Ultimately, this normative and reputational saturation may indicate a ceiling in the scope for visible improvements (DiMaggio and Powell 1983), such that new ESG initiatives cease to operate as credible signals of growth potential (Bagh et al. 2024). Building on these arguments, it is plausible that high-performing environmental systems weaken the ability of ESG performance to translate into market-perceived growth opportunities. Accordingly, our Hypothesis 6 is as follows:

Hypothesis 6. *The ability of firms to translate ESG performance into market-perceived growth opportunities is weaker in countries with higher environmental performance.*

3 | Data and Methodology

3.1 | Sample

We analyze an unbalanced panel of 1229 listed firms from eight European countries (Finland, France, Italy, Norway, Portugal, Spain, Sweden, and the United Kingdom) between 2013 and 2023, yielding a common sample of 7792 firm-year observations. Financial and corporate governance data were obtained from Refinitiv Eikon; education expenditure from Eurostat and the Office for National Statistics; GDP per capita growth and institutional quality indicators from the World Bank; cultural dimensions from Hofstede Insights; and the Environmental Performance Index from the Yale Center for Environmental Law and Policy.

3.2 | Methodology and Model

We apply ordinary least squares with heteroskedasticity-robust standard errors to estimate the relationship between ESG performance and firm growth opportunities under different institutional environments. This approach is appropriate given the continuous nature of the dependent variable and the objective of identifying average marginal effects while controlling for firm-level and country-level characteristics. To account for potential heteroskedasticity commonly observed in cross-country firm-level data, heteroskedasticity-robust standard errors are employed to ensure valid statistical inference. Previous research has widely used OLS regressions with robustness corrections in the ESG–valuation literature (De la Fuente et al. 2022; Serafeim and Yoon 2023; Chasiotis et al. 2024; Ferreras et al. 2024), which are conceptually aligned with our empirical strategy.

Financial and corporate governance variables were winsorized at the 1% and 99% levels to mitigate the influence of outliers in the analysis. In line with our theoretical reasoning, the Market-To-Book ratio (MTB) is used as a forward-looking

indicator reflecting investors' assessment of firms' growth opportunities (Fama and French 1995; Penman 1996; Choi et al. 2021; Mihai 2024). Hence, it serves as the dependent variable to examine whether superior ESG performance translates into higher market-perceived growth potential. The baseline model is specified as follows:

$$MTB_{it} = \beta_0 + \beta_1 ESG_{it} + \beta' X_{it} + \mu_{it} \quad (1)$$

To test Hypotheses 2–6, the baseline model is augmented with interaction terms capturing the moderating role of institutional factors. The empirical model is defined as follows:

$$MTB_{it} = \beta_0 + \beta_1 ESG_{it} + \beta_2 HELIX_t + \beta_3 (ESG_{it} \times HELIX_t) + \beta' X_{it} + \mu_{it} \quad (2)$$

Definitions of the variables included in the models are listed in Table 1. MTB, the dependent variable in our analysis, serves as a proxy for firms' market-perceived growth opportunities by comparing market value with the book value of assets (Fama and French 1995; Choi et al. 2021). ESG is the main independent variable under study and summarizes companies' environmental, social and governance performance (Rahi et al. 2022; Bissoondoyal-Bheenick et al. 2023). For Hypotheses 2–6, HELIX denotes the institutional dimensions of the QHM defined by Carayannis and Campbell (2010): educational (EDU), economic (GGDP), political legal (POL), cultural (CULT) and environmental (EPI), which interact with ESG to assess their moderating effects (Jackson and Deeg 2008). All models include a vector of control variables (X_{it}) to account for firm-level and governance characteristics that may influence growth opportunities. These controls are common in the literature and comprise profitability (ROA) (Eliwa et al. 2021), firm size (SIZE) (Farooq and Thavorn 2025), financial leverage (DEBT) (Chen et al. 2023), tangibility of assets (TANG) (Garel and Petit-Romec 2021), liquidity (LIQ) (Chen, Xie, et al. 2025), R&D investment (RDA) (Yu et al. 2018), board size (BSIZE) (Issa et al. 2022), board independence (BIND) (Đặng et al. 2020) and board industrial and financial expertise (BSPSKILLS) (Katsiampa et al. 2024). In addition, dummies were used to control for country and year effects.

4 | Empirical Results

4.1 | Descriptive Statistics

The basic statistics of the variables are presented in Table 2. MTB shows strong heterogeneity, with a mean of 1.68 and a standard deviation of 4.19, indicating wide variation in firms' market-perceived growth opportunities. ESG averages 53.56, with substantial dispersion across organizations, as reflected in a standard deviation of 20.17. At the country level, all institutional indicators display meaningful relative variation, with economic growth showing the greatest dispersion and political governance the lowest, while education, culture, and environmental performance exhibit intermediate levels of heterogeneity.

The results of the correlation analysis between the main variables in our model are reported in Table 3. Pairwise correlations with MTB are uniformly small, with none exceeding |0.25|. Correlations with institutional indicators are

TABLE 1 | Definition of variables.

Variable	Definition	Source
<i>Dependent variable</i>		
MTB	Market value calculated as the daily closing price multiplied by the number of shares, divided by total assets.	Thomson Reuters Eikon
<i>Independent variables</i>		
ESG	ESG score is an overall company score based on the self-reported information in the environmental, social and corporate governance pillars.	Thomson Reuters Eikon
ENV	Environmental pillar score.	Thomson Reuters Eikon
SOC	Social pillar score.	Thomson Reuters Eikon
GOV	Corporate governance pillar score.	Thomson Reuters Eikon
<i>Control variables</i>		
ROA	Earnings Before Interest and Taxes (EBIT) to total assets.	Thomson Reuters Eikon
SIZE	Logarithm of total assets.	Thomson Reuters Eikon
DEBT	The sum of short-term and long-term debt to total common equity.	Thomson Reuters Eikon
TANG	Net property, plant and equipment value to total assets.	Thomson Reuters Eikon
LIQ	Total current assets to total current liabilities.	Thomson Reuters Eikon
RDA	Research and development expense to total assets.	Thomson Reuters Eikon
BSIZE	Number of directors on a board.	Thomson Reuters Eikon
BIND	Proportion of nonexecutive board members of all members.	Thomson Reuters Eikon
BSPSKILLS	Percentage of board members who have either an industry specific background or a strong financial background.	Thomson Reuters Eikon
<i>Moderating variables</i>		
EDU	The percentage of public spending on education over the country's GDP.	Eurostat & Office for National Statistics
GGDP	The gross domestic product per capita growth.	World Bank
POL	Composite score reflecting the strength of countries' governance through six indicators: (i) Voice and Accountability, (ii) Political Stability and Absence of Violence/Terrorism, (iii) Government Effectiveness, (iv) Regulatory Quality, (v) Rule of Law, and (vi) Control of Corruption.	World Bank
CULT	Average score reflecting Hofstede's cultural system indicators: (i) power distance, (ii) individualism, (iii) masculinity, (iv) uncertainty avoidance, (v) long-term orientation, and (vi) indulgence.	Hofstede website
EPI	Score providing a data-driven summary of the state of sustainability around the world. Using 40 performance indicators across 11 issue categories, the EPI ranks 180 countries on their progress toward improving environmental health, protecting ecosystem vitality, and mitigating climate change.	Yale Centre for Environmental Law & Policy

TABLE 2 | Main statistics.

	Mean	Std. Dev.	Median	Min	Max
MTB	1.6843	4.1897	0.7477	0.0015	62.4746
ESG	53.5596	20.1688	55.5176	7.5109	89.7353
ROA	0.0583	0.1320	0.0622	−2.0591	0.3520
SIZE	21.3712	1.9370	21.4271	12.8334	25.8202
DEBT	0.9308	1.7259	0.5891	−6.8584	13.4667
TANG	0.2239	0.2130	0.1559	0.0000	0.8872
LIQ	1.7767	2.3022	1.3154	0.0700	60.9978
RDA	0.0107	0.0514	0.0000	0.0000	1.5490
BSIZE	9.2550	3.2019	9.0000	4.0000	20.0000
BIND	78.7718	14.6228	80.0000	40.0000	100.0000
BSPSKILLS	42.8380	21.8890	41.6667	0.0000	100.0000
EDU	4.9833	1.3476	4.2120	3.5346	7.8000
GGDP	0.9182	4.2714	1.1204	−11.3741	9.4942
POL	1.2814	0.3364	1.2742	0.4783	1.8562
CULT	49.9952	9.1191	49.1667	36.6667	65.8333
EPI	76.7406	7.5858	78.0400	50.4000	90.6800

Note: Variable definitions in Table 1.

likewise modest, indicating limited bivariate association with valuation.¹

4.2 | Market Response to ESG Performance

Table 4 summarizes the results of the baseline OLS regressions relating ESG performance to MTB. In Model (1), aggregate ESG is positively associated with MTB. Given that MTB proxies for market-perceived growth opportunities, this implies greater growth prospects for higher-ESG firms. Given the forward-looking nature of market valuation (Myers 1977), this finding suggests that ESG performance is incorporated into investors' expectations regarding companies' future growth potential, consistent with prior evidence linking ESG engagement to sustained performance and stronger strategic positioning (Khan et al. 2016; Lins et al. 2017; Lian and Weng 2024; Rahat and Nguyen 2024). In addition to the main specification, the pillars were also tested individually as a complementary analysis to verify the robustness of the aggregate effect. The results, reported in Models (2–4), show that the environmental, social and governance dimensions are all positively associated with MTB, confirming that the aggregate effect is not driven by a single pillar. This evidence is consistent with prior studies showing that markets value a comprehensive ESG orientation rather than isolated or fragmented initiatives (Berg et al. 2022; Serafeim and Yoon 2023).

From a theoretical standpoint, this pattern can be interpreted through both stakeholder and signalling theories (Spence 1973; Freeman 1984), which converge on the role of trust as a central transmission mechanism. ESG practices strengthen stakeholder relationships by addressing a broad set of stakeholder expectations

(Mahajan et al. 2023) and enhance firm resilience, which ultimately translates into higher market valuations (Bénabou and Tirole 2010). At the same time, ESG performance operates as a credible signal to investors (Billio et al. 2021), reflecting superior risk management and a long-term strategic orientation (Hoepner et al. 2024; Fang and Guo 2025), reinforcing corporate reputation (Fombrun 1996) and market confidence in companies' growth prospects (Jones 1995; Fatemi et al. 2018). The effectiveness of this signal, however, depends on the extent to which ESG commitments are coherently embedded in corporate strategy, as such integration enhances the credibility of non-financial information and strengthens firms' strategic positioning in the eyes of investors (Eccles et al. 2014). While agency theory cautions that ESG initiatives may reflect managerial discretion without clear shareholder benefits (Jensen and Meckling 1976), the positive association between ESG performance and MTB suggests that, on average, markets interpret ESG strategies as value-enhancing and aligned with shareholder interests rather than as manifestations of opportunistic behaviour, consistent with the evidence reported by Flammer and Kacperczyk (2016). Overall, the evidence indicates that ESG performance constitutes a relevant dimension shaping investors' perceptions of organizations' growth opportunities. In this regard, our results support this view and provide empirical backing for the acceptance of Hypothesis 1.

4.3 | Impact of Institutional Environment

As shown in Table 5, the inclusion of the institutional variables leaves the ESG coefficient unchanged in sign and significance, which remains positive and statistically significant in all five models and reinforces the robustness of Hypothesis 1. In this

TABLE 3 | Correlation analysis.

	MTB	ESG	ROA	SIZE	DEBT	TANG	LIQ	RDA	BSIZE	BIND	BSPSKILLS	EDU	GGDP	POL	CULT	EPI
MTB	1.0000															
ESG	-0.1230 ^a	1.0000														
ROA	-0.0366 ^a	0.1225 ^a	1.0000													
SIZE	-0.2488 ^a	0.6956 ^a	0.1851 ^a	1.0000												
DEBT	-0.0809 ^a	0.0834 ^a	-0.0414 ^a	0.1488 ^a	1.0000											
TANG	-0.1015 ^a	0.1264 ^a	0.0649 ^a	0.1651 ^a	0.1657 ^a	1.0000										
LIQ	0.1138 ^a	-0.1716 ^a	-0.1006 ^a	-0.1960 ^a	-0.1132 ^a	-0.1378 ^a	1.0000									
RDA	0.1152 ^a	-0.0511 ^a	-0.4381 ^a	-0.1815 ^a	-0.0450 ^a	-0.1045 ^a	0.0842 ^a	1.0000								
BSIZE	-0.1285 ^a	0.5088 ^a	0.0606 ^a	0.6354 ^a	0.0838 ^a	0.0840 ^a	-0.1233 ^a	-0.0545 ^a	1.0000							
BIND	0.0094	0.3038 ^a	-0.0975 ^a	0.1993 ^a	0.0282 ^a	-0.0233 ^a	-0.0243 ^a	0.0883 ^a	0.2197 ^a	1.0000						
BSPSKILLS	-0.0264 ^a	-0.1144 ^a	0.0648 ^a	-0.1148 ^a	-0.0365 ^a	0.0304 ^a	0.0209	-0.0205	-0.2256 ^a	-0.5799	1.0000					
EDU	0.1532 ^a	-0.0755 ^a	-0.1191 ^a	-0.1508 ^a	-0.0582 ^a	-0.1782 ^a	0.0648 ^a	0.1155 ^a	-0.1103 ^a	0.4950 ^a	-0.4664 ^a	1.0000				
GGDP	-0.0534 ^a	0.0169	0.0344 ^a	0.0191	0.0028	-0.0183	-0.0005	0.0036	0.0183	-0.0060	0.0052	-0.0627	1.0000			
POL	0.0997 ^a	-0.1706 ^a	-0.0156	-0.2099 ^a	-0.0980 ^a	-0.0751 ^a	0.0602 ^a	0.0380 ^a	-0.3961 ^a	0.1781 ^a	-0.0557 ^a	0.5142 ^a	-0.0367 ^a	1.0000		
CULT	0.1652 ^a	-0.2117 ^a	-0.0724 ^a	-0.3078 ^a	-0.0925 ^a	-0.1243 ^a	0.1012 ^a	0.0730 ^a	-0.4104 ^a	0.2083 ^a	-0.1366 ^a	0.7180 ^a	-0.0259 ^a	0.8249 ^a	1.0000	
EPI	0.0532 ^a	-0.0474 ^a	0.0536 ^a	0.0012	-0.0746 ^a	0.0042	0.0260 ^a	-0.0211	-0.0851 ^a	-0.1394 ^a	0.1238 ^a	0.0191	-0.0312 ^a	0.2732 ^a	0.1816 ^a	1.0000

Note: Variable definitions in Table 1.

^aDenotes significance at the 5% level.

TABLE 4 | Effect of ESG and its pillars on MTB.

	(1)	(2)	(3)	(4)
	ESG	ENV	SOC	GOV
ESG	0.0201*** [0.00407]			
ENV		0.00753*** [0.00241]		
SOC			0.0236*** [0.00405]	
GOV				0.00794*** [0.00232]
ROA	1.568 [2.006]	1.587 [2.024]	1.505 [1.983]	1.698 [2.000]
SIZE	−0.682*** [0.0650]	−0.609*** [0.0568]	−0.686*** [0.0638]	−0.597*** [0.0550]
DEBT	−0.0475*** [0.0169]	−0.0550*** [0.0174]	−0.0493*** [0.0169]	−0.0487*** [0.0169]
TANG	−0.749*** [0.122]	−0.743*** [0.122]	−0.569*** [0.123]	−0.752*** [0.122]
LIQ	0.109*** [0.0300]	0.108*** [0.0300]	0.104*** [0.0292]	0.101*** [0.0302]
RDA	5.150* [2.803]	5.625** [2.786]	4.956* [2.782]	5.341* [2.823]
BSIZE	0.0527*** [0.0189]	0.0567*** [0.0187]	0.0522*** [0.0187]	0.0714*** [0.0205]
BIND	0.00446 [0.00445]	0.0101** [0.00467]	0.00692 [0.00450]	0.00526 [0.00423]
BSPSKILLS	−0.00205 [0.00344]	−0.000573 [0.00351]	−0.000559 [0.00347]	−0.00228 [0.00347]
Constant	13.28*** [1.162]	11.82*** [1.009]	12.50*** [1.035]	11.96*** [1.025]
Observations	7641	7641	7641	7641
R-squared	0.113	0.111	0.120	0.111
Time fixed effects	YES	YES	YES	YES
Country fixed effects	YES	YES	YES	YES
Adj. Rsq	0.109	0.107	0.116	0.107

Note: Robust standard errors in brackets. ***, **, and * denote significance at the 1%, 5% and 10% levels, respectively.

setting, the estimated interaction effects are consistent with the logic of the Quintuple Helix Model (QHM; Carayannis and Campbell 2010), according to which national institutional environments shape the conditions of legitimacy and information under which ESG performance becomes relevant to the market

(Matten and Moon 2008; Christensen et al. 2021). From this perspective, these systems determine whether ESG operates as a differentiating signal of growth or, alternatively, as a standardized attribute, thus reducing its marginal contribution to investors' growth expectations.

TABLE 5 | Effect of institutional factors on the relationship between ESG and MTB.

	(1)	(2)	(3)	(4)	(5)
	EDU	GGDP	POL	CULT	EPI
ESG	0.0893*** [0.0125]	0.0193*** [0.00411]	0.0705*** [0.00817]	0.119*** [0.0158]	0.106*** [0.0186]
EDU	1.426*** [0.261]				
ESG × EDU	−0.0137*** [0.00253]				
GGDP		0.0490 [0.0346]			
ESG × GGDP		0.000818** [0.000347]			
POL			1.429 [0.955]		
ESG × POL			−0.0385*** [0.00655]		
CULT				0.169*** [0.0232]	
ESG × CULT				−0.00195*** [0.000330]	
EPI					0.0534*** [0.0167]
ESG × EPI					−0.00111*** [0.000236]
ROA	1.850 [2.029]	1.523 [2.007]	1.705 [2.017]	1.855 [2.026]	1.511 [2.006]
SIZE	−0.685*** [0.0649]	−0.679*** [0.0648]	−0.685*** [0.0649]	−0.683*** [0.0649]	−0.688*** [0.0652]
DEBT	−0.0498*** [0.0173]	−0.0481*** [0.0168]	−0.0514*** [0.0168]	−0.0513*** [0.0170]	−0.0487*** [0.0168]
TANG	−0.713*** [0.122]	−0.748*** [0.122]	−0.745*** [0.123]	−0.710*** [0.122]	−0.750*** [0.123]
LIQ	0.102*** [0.0289]	0.109*** [0.0299]	0.108*** [0.0301]	0.103*** [0.0294]	0.108*** [0.0301]
RDA	5.618** [2.828]	5.119* [2.805]	5.534* [2.838]	5.771** [2.853]	5.196* [2.801]
BSIZE	0.0582*** [0.0190]	0.0521*** [0.0189]	0.0536*** [0.0189]	0.0567*** [0.0188]	0.0524*** [0.0190]
BIND	0.00279	0.00526	0.00297	0.00263	0.00448

(Continues)

TABLE 5 | (Continued)

	(1)	(2)	(3)	(4)	(5)
	EDU	GGDP	POL	CULT	EPI
	[0.00452]	[0.00451]	[0.00447]	[0.00447]	[0.00447]
BSPSKILLS	0.000708	−0.00172	−0.00136	−0.000693	−0.00240
	[0.00328]	[0.00343]	[0.00339]	[0.00335]	[0.00344]
Constant	7.033***	13.38***	11.66***	5.037***	9.401***
	[1.456]	[1.180]	[1.756]	[1.486]	[1.571]
Observations	7641	7641	7641	7641	7641
R-squared	0.122	0.115	0.117	0.120	0.115
Time fixed effects	YES	YES	YES	YES	YES
Country fixed effects	YES	YES	YES	YES	YES
Adj. Rsq	0.118	0.111	0.113	0.116	0.111

Note: Robust standard errors in brackets. ***, **, and * denote significance at the 1%, 5% and 10% levels, respectively.

First, the educational system (column 1) exhibits a negative moderating effect, indicating that higher public investment in education weakens the positive association between ESG performance and market-perceived growth opportunities. This result can be interpreted as reflecting stricter investor scrutiny in contexts with more developed educational systems, which are characterized by higher levels of information, critical capacity, and social awareness (Campbell 2007; Tu and Guo 2024). In such environments, ESG initiatives are assessed against more demanding legitimacy thresholds, such that superficial or purely symbolic practices are insufficient to convey a differentiated and credible growth potential to the market (Hawn and Ioannou 2016; Marquis et al. 2016). This increased attention and sophistication in the evaluation of corporate sustainability reduce the ability of moderate ESG performance to function as an effective signal of long-term growth, consistent with evidence showing that markets respond more selectively when ESG information is widely understood and anticipated by investors (Pankratz et al. 2023).

Second, the economic system (column 2) presents a positive moderating effect, implying that the ESG-MTB relationship is stronger in economies with faster GDP per capita growth. This is aligned with the view that, in expansionary contexts, investors place greater weight on corporate ESG as an indicator of organizational capabilities to identify, develop, and exploit sustainable long-term growth opportunities (Hwang et al. 2024). In these countries, greater resource availability and deeper financial markets make it easier for ESG initiatives to turn into scalable projects and strategic growth options, thereby reinforcing their relevance for market valuation. This interpretation aligns with real options-based perspectives, which emphasize the role of favourable economic conditions and developed financial markets in the valuation of future growth opportunities (Trigeorgis and Reuer 2017).

With respect to the political-legal system (column 3), the negative moderating effect suggests that in stronger political-legal environments the link between ESG performance and

market-perceived growth opportunities is weaker. This finding can be interpreted in light of greater systemic credibility and institutional stability in nations with more developed regulatory and legal frameworks, where investors have already internalized high standards of governance and institutional protection and, consequently, ESG performance provides a more limited incremental signal for the formation of growth expectations (Pandey et al. 2024). As a result, in such contexts ESG practices tend to become institutionalized and are primarily perceived as compliance requirements rather than discretionary initiatives, which reduces their ability to strategically differentiate firms beyond what is already ensured by the institutional environment (Haack et al. 2012; Marquis and Qian 2014).

Similarly, the cultural system (column 4) shows a negative moderating effect, reflecting that in societies where sustainability-related values are deeply embedded in social norms and collective expectations, companies' ESG performance loses its ability to function as a differentiating signal to the market (Xiao et al. 2018). In these environments, investors tend to anticipate high levels of ESG commitment as part of firms' expected behaviour, such that this information is already, to a substantial extent, reflected in prices and growth expectations (Pástor et al. 2021). Therefore, ESG performance provides only a limited incremental signal regarding organizations' future opportunity generation, as it is interpreted more as a requirement of social alignment than as a discretionary expression of strategic vision. This cultural normalization of sustainable behaviour reduces the observable heterogeneity across firms and, in turn, the informational content of ESG for explaining differences in market-perceived growth opportunities (Forcadell et al. 2023).

Finally, the environmental system (column 5) also exhibits a negative moderating effect, suggesting that in countries with higher environmental performance the ESG-MTB relationship is attenuated. This finding is in line with the view that in nations where environmental standards are stringent and public policies have advanced significantly, investors tend to apply more demanding credibility thresholds, primarily

TABLE 6 | Results of the 2SLS estimations.

	(1)	(2)	(3)	(4)	(5)	(6)
	ESG	EDU	GGDP	POL	CULT	EPI
ESG	0.0514*** [0.0112]	0.2770*** [0.0709]	0.0517*** [0.0115]	0.5939*** [0.1326]	1.8443*** [0.6021]	1.6090** [0.6888]
EDU		3.8443*** [0.8507]				
ESG × EDU		−0.0525*** [0.0131]				
GGDP			0.0570 [0.0453]			
ESG × GGDP			−0.0004 [0.0006]			
POL				23.1776*** [5.7049]		
ESG × POL				−0.4154*** [0.0926]		
CULT					2.1100*** [0.6767]	
ESG × CULT					−0.0353*** [0.0115]	
EPI						1.3429** [0.5741]
ESG × EPI						−0.0205** [0.0088]
ROA	9.7781*** [0.6407]	10.6010*** [0.6279]	9.7633*** [0.6401]	10.1261*** [0.7228]	12.0727*** [1.1371]	9.2775*** [0.9076]
SIZE	−0.6731*** [0.0791]	−0.5559*** [0.0762]	−0.6732*** [0.0794]	−0.8303*** [0.1195]	−1.1837*** [0.2841]	−0.6000*** [0.1158]
DEBT	0.0533* [0.0276]	0.0373 [0.0276]	0.0539* [0.0276]	0.0355 [0.0315]	0.0384 [0.0446]	0.0493 [0.0332]
TANG	−0.4195* [0.2249]	−0.2246 [0.2327]	−0.4219* [0.2249]	−0.4328* [0.2583]	0.2221 [0.4233]	−0.7137** [0.2959]
LIQ	0.2462*** [0.0411]	0.2521*** [0.0416]	0.2455*** [0.0411]	0.2297*** [0.0472]	0.2546*** [0.0671]	0.2004*** [0.0520]
RDA	14.7452*** [1.9059]	18.1267*** [1.7934]	14.7363*** [1.9077]	18.7958*** [2.0526]	21.7360*** [3.1203]	17.3795*** [2.1537]
BSIZE	−0.0108 [0.0224]	0.0358 [0.0232]	−0.0110 [0.0225]	0.0573** [0.0276]	0.1850*** [0.0675]	−0.0231 [0.0297]
BIND	−0.0157***	−0.0144**	−0.0153**	−0.0316***	−0.0525***	−0.0174*

(Continues)

TABLE 6 | (Continued)

	(1)	(2)	(3)	(4)	(5)	(6)
	ESG	EDU	GGDP	POL	CULT	EPI
	[0.0059]	[0.0066]	[0.0060]	[0.0091]	[0.0192]	[0.0095]
BSPSKILLS	−0.0100***	−0.0011	−0.0100***	−0.0083**	−0.0004	−0.0170***
	[0.0031]	[0.0034]	[0.0031]	[0.0035]	[0.0054]	[0.0057]
Constant	13.3506***	−6.5337**	13.3210***	−13.2833**	−83.2021***	−89.9657**
	[1.4551]	[3.0944]	[1.4517]	[5.5144]	[29.0681]	[41.8391]
Observations	6049	6049	6049	6049	6049	6049
Time fixed effects	YES	YES	YES	YES	YES	YES
Country fixed effects	YES	YES	YES	YES	YES	YES
Anderson-Rubin test (AR)	26.84	35.07	25.77	30.67	31.49	28.49
p-value	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
Kleibergen-Paap rk Wald test	21.16	15.28	20.10	20.06	9.38	5.46
p-value	(0.0000)	(0.0001)	(0.0000)	(0.0000)	(0.0022)	(0.0195)

Note: Standard errors in brackets. ***, **, and * denote significance at the 1%, 5% and 10% levels, respectively.

valuing strategies that involve substantive and materially relevant changes rather than incremental improvements in ESG indicators (Le et al. 2025). Consequently, ESG initiatives that are not perceived as genuinely transformative lose their ability to function as credible signals of future orientation, so ESG performance carries less weight as a credible indicator of future growth (Bagh et al. 2024).

These findings can be interpreted through the complementary insights of institutional and legitimacy theories (Suchman 1995; Scott 2005), both of which highlight the idea that firms should take into account the institutional context that defines socially accepted behaviour when developing their ESG practices (Hahn and Kühnen 2013; Jiang et al. 2024), so that these initiatives generate market-relevant value. On this basis, our empirical evidence supports all the proposed moderating hypotheses, leading to the acceptance of Hypotheses 2–6.

4.4 | Robustness Checks

4.4.1 | Two-Stage Least Squares (2SLS)

To further corroborate our results, we rerun the baseline and moderation models using an instrumental variable two-stage least squares (2SLS) specification. This robustness analysis is designed to address potential endogeneity concerns arising from omitted variables or reverse causality between ESG performance and firm growth opportunities. By using 2SLS, we obtain consistent estimates even in the presence of such endogeneity, allowing us to assess whether the main findings remain robust when applying an alternative, theoretically justified estimation approach within our empirical framework. This complementary analysis strengthens the credibility and reliability of the results, providing additional confidence in the observed relationships.

We employ three instruments, one for each ESG pillar: firm-level CO₂ emissions scaled by revenues for the environmental dimension, the existence of policies against forced labour and in favour of freedom of association for the social dimension, and board gender diversity for the governance dimension. These instruments are correlated with each pillar but unlikely to be directly related to market-perceived growth opportunities, thus satisfying the exclusion restriction. In general, the results, reported in Table 6, display patterns consistent with our baseline specification, with the sign and statistical significance of the ESG-related coefficients broadly preserved, which supports the robustness of our findings.

4.4.2 | Tobin's Q Specification

As an additional robustness check, we replace MTB with Tobin's Q as the dependent variable. Tobin's Q is obtained by adding market capitalization to total assets, subtracting equity, and dividing the result by total assets. As shown in Table 7, the estimates are identical to those of our baseline models, indicating that the use of this alternative proxy does not alter our conclusions.

5 | Conclusions

This study explores, for European firms, (i) whether stronger ESG performance is associated with higher market-perceived growth opportunities and (ii) how this relationship is shaped by the institutional environment measured through the QHM. The results indicate that companies with higher sustainability performance are generally perceived by investors as having greater growth potential. However, this association varies across countries, as national institutional contexts condition the extent to which ESG commitments are interpreted as credible indicators of growth. Overall, the evidence suggests that markets tend to

TABLE 7 | Results of the Tobin's Q estimations.

	(1)	(2)	(3)	(4)	(5)	(6)
	ESG	EDU	GGDP	POL	CULT	EPI
ESG	0.0215*** [0.00428]	0.0911*** [0.0127]	0.0207*** [0.00432]	0.0711*** [0.00831]	0.118*** [0.0160]	0.111*** [0.0195]
EDU		1.445*** [0.273]				
ESG × EDU		−0.0138*** [0.00257]				
GGDP			0.0549 [0.0361]			
ESG × GGDP			0.000808** [0.000352]			
POL				1.415 [1.013]		
ESG × POL				−0.0379*** [0.00668]		
CULT					0.167*** [0.0238]	
ESG × CULT					−0.00191*** [0.000335]	
EPI						0.0543*** [0.0176]
ESG × EPI						−0.00115*** [0.000247]
ROA	0.712 [2.184]	0.995 [2.207]	0.664 [2.185]	0.847 [2.196]	0.993 [2.205]	0.652 [2.184]
SIZE	−0.690*** [0.0686]	−0.694*** [0.0686]	−0.687*** [0.0685]	−0.694*** [0.0686]	−0.692*** [0.0686]	−0.696*** [0.0689]
DEBT	−0.0239 [0.0175]	−0.0262 [0.0179]	−0.0246 [0.0175]	−0.0277 [0.0174]	−0.0277 [0.0177]	−0.0253 [0.0174]
TANG	−0.726*** [0.128]	−0.690*** [0.127]	−0.725*** [0.127]	−0.722*** [0.128]	−0.689*** [0.127]	−0.727*** [0.128]
LIQ	0.0741** [0.0291]	0.0680** [0.0281]	0.0747*** [0.0290]	0.0740** [0.0291]	0.0691** [0.0285]	0.0736** [0.0292]
RDA	4.501 [3.031]	4.973 [3.058]	4.469 [3.033]	4.879 [3.068]	5.111* [3.083]	4.547 [3.028]
BSIZE	0.0552*** [0.0201]	0.0606*** [0.0202]	0.0545*** [0.0201]	0.0560*** [0.0202]	0.0591*** [0.0201]	0.0549*** [0.0203]
BIND	0.00459	0.00293	0.00544	0.00313	0.00279	0.00462

(Continues)

TABLE 7 | (Continued)

	(1)	(2)	(3)	(4)	(5)	(6)
	ESG	EDU	GGDP	POL	CULT	EPI
BSPSKILLS	[0.00462]	[0.00469]	[0.00470]	[0.00464]	[0.00464]	[0.00465]
	−0.00209	0.000675	−0.00175	−0.00142	−0.000767	−0.00247
	[0.00355]	[0.00340]	[0.00354]	[0.00350]	[0.00346]	[0.00355]
Constant	14.07***	7.681***	14.11***	12.41***	5.839***	10.06***
	[1.212]	[1.541]	[1.228]	[1.860]	[1.537]	[1.648]
Observations	7641	7641	7641	7641	7641	7641
R-squared	0.099	0.107	0.101	0.102	0.105	0.100
Time fixed effects	YES	YES	YES	YES	YES	YES
Country fixed effects	YES	YES	YES	YES	YES	YES
Adj. Rsq	0.0949	0.103	0.0964	0.0976	0.101	0.0962

Note: Robust standard errors in brackets. ***, **, and * denote significance at the 1%, 5% and 10% levels, respectively.

reward sustainability, although the strength of this effect depends on the country-level institutional characteristics under which organizations operate.

ESG performance thus appears to combine strategic and informational dimensions, aligning its relevance for corporate positioning with its capacity to convey reliable signals to investors (Spence 1973; Bénabou and Tirole 2010; Brooks and Oikonomou 2018), whose relative importance varies among nations (Scott 2005; Campbell 2007). Where institutional conditions are more conducive to sustainability, ESG practices become taken-for-granted conventions, losing part of their legitimacy-enhancing role (Suchman 1995; Jackson and Apostolou 2010; Pandey et al. 2024), whereas in less conducive environments they still reflect firms' consistency and credibility, reinforcing stakeholder alignment (Freeman 1984) and reputational capital (Fombrun 1996). In essence, what determines the impact of ESG performance is not its existence, but the institutional lenses through which markets interpret it.

This study contributes to the literature by adopting a forward-looking perspective on corporate sustainability. While most prior studies have focused on retrospective measures of financial performance, we assess how ESG translates into market-perceived growth opportunities through the Market-To-Book ratio, a proxy grounded in the idea that a substantial part of firm value derives from growth opportunities expectations (Myers 1977). By doing so, we bring evidence to a dimension of ESG that has been emphasized as critical for investors seeking signals of long-term strategic orientation (Lian and Weng 2024), yet remains underexplored in empirical research. Furthermore, our study contributes by operationalising the institutional environment through the QHM (Carayannis and Campbell 2010), providing an integrative approach that captures cross-country variation in how sustainability is embedded and valued within markets. This model allows us to capture institutional heterogeneity more fully than traditional approaches (Whitley 1999), thereby clarifying the conditions under which ESG performance retains or loses its strategic value for markets. Finally, by combining firm-level

and country-level data from a multi-country European sample, our research strengthens the empirical design and enhances the generalizability of results, responding to recent calls for studies that integrate sustainability and institutional diversity in markets (Reverte et al. 2025).

The implications of our findings are particularly salient for investors, who should account for institutional heterogeneity when interpreting ESG performance. Since the strategic value of corporate sustainability commitments depends not only on the content of the policies but also on their fit with institutional environments, investment decisions need to incorporate this contextual dimension to avoid overestimating or underestimating firms' growth prospects. For managers, our evidence highlights that generic ESG initiatives are unlikely to yield sustained valuation benefits unless they are designed as credible, context-specific strategies aligned with long-term transformation. Finally, for standard setters and rating agencies, the results underscore the relevance of developing country-adjusted benchmarks that disentangle institutional conditions from firm-level policy quality, thereby enhancing comparability across countries. Taken together, these implications reinforce the need for a more nuanced evaluation of ESG, one that integrates both firm-level practices and institutional environments to better capture their impact on market-perceived growth opportunities.

Some limitations should be considered when interpreting our findings. First, given that the analysis is conducted on European countries, the institutional characteristics may be comparatively homogeneous, which can constrain cross-context variability and, therefore, the extent to which the results generalize to more diverse institutional environments. Second, our measures rely on publicly available information, which necessarily reflects what firms disclose and what external data providers can observe. Consequently, some internal practices or the quality of implementation may not be fully captured. Future research could extend this work by examining more institutionally heterogeneous samples and by complementing public disclosures with alternative data sources to further refine measurement and interpretation.

Endnotes

¹ Variance inflation factors (VIF) were computed for all models. All values were well below the conventional threshold of 10, indicating no concern for multicollinearity (Hair et al. 2019).

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