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The Moderating Role of Worldwide Governance Indicators on ESG–Firm Performance Relationship: Evidence from Europe †

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Abstract: Engaging in Environmental, Social, and Governance (ESG) activities entails costs that influence a firm's financial and market performance. However, it is expected that the long-term benefits of ESG engagement outweigh these costs, leading to superior performance. Despite extensive research on the ESG–performance relationship, findings remain mixed. This study examines the moderating effect of country governance, measured by the Worldwide Governance Indicators (WGIs), on the relationship between firms' ESG scores and their financial and market performance in the European context. Using a two-stage least squares (2SLS) regression model and a dataset spanning 12 years (2011–2022) for 2083 listed European firms, we find that WGI significantly moderates the ESG–performance relationship. Our results indicate that ESG engagement alone has a negative impact on financial performance (ROA), suggesting that the costs associated with ESG investments often outweigh their short-term benefits. However, strong governance structures mitigate these costs, transforming ESG investments into value-enhancing activities. Conversely, ESG engagement positively influences market performance (Tobin's Q), signaling long-term value to investors. Yet, in jurisdictions with strong governance frameworks, this effect diminishes, as ESG compliance becomes a baseline expectation rather than a differentiating factor.

Keywords: ESG; Worldwide Governance Indicators; financial performance; market performance; ROA; Tobin's Q; Europe

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1. Introduction

ESG scores have become a crucial criterion for measuring sustainability, and there is an ever-growing awareness of their importance among companies as well as stakeholders at large. Nowadays, investors are putting more and more weight on firm ESG practices, and regulations are becoming stricter regarding ethical business conduct; therefore, companies are increasingly incorporating ESG criteria in their business strategies. Broadly speaking, ESG scores measure a company's performance in three key areas: Environmental, Social, and Governance. The first area (E) refers to environmental and natural systems aspects. It is based on factors such as climate change, biodiversity, energy, pollution, and waste management. The second area (S) refers to the rights and well-being of individuals and communities. It is based on factors such as equality, health and safety, labor practices, and community relations. The third area (G) refers to firm governance aspects such as

leadership, audit practices and internal controls, tax avoidance, corruption and bribery, as well as shareholder rights.

Despite being non-financial factors, ESG can influence a firm's risk through its sustainability and ethical profile, which in turn have the power to influence financial and market performance. For example, the Environmental component can directly influence performance when elements such as extreme drought, floods, and hurricanes physically interfere with business operations. However, it can also have an indirect influence through changes in technologies, policies and regulations, and public awareness and preferences, all of which may require transformation and a shift in the way of doing business. Through these physical and transition impacts, ESG can potentially affect a firm's credit ratings and market valuation. The Social component can influence a firm's performance and continuity, mainly through standards and regulations on labor rights, safety, and community relations. The tightening of such regulations may lead to increased operational costs or even business disruption if the requirements are not met. Finally, the Governance component, which includes mainly aspects of an ethical and legal nature—such as fraud, corruption, and transparency—influences the firm's reputation leading to a loss of trust by investors and customers. Issues related to fraudulent financial reporting or unethical business practices may result in significant costs in the form of fines and prolonged legal battles, as well as significantly impair firms' market valuation (European Banking Authority, 2021).

Based on our review of prior research, we have identified a gap in the literature regarding the use of moderating factors in the ESG–performance relationship (Whelan et al., 2021). In this study, we argue that robust country governance structures, proxied by the Worldwide Governance Indicators (WGIs), can significantly influence the ESG–firm performance relationship. Good country governance promotes transparency, honesty, accountability, and ethical behavior, which helps create a stable and predictable business environment. These qualities are highly valued by stakeholders and contribute to the long-term success of the firm.

2. Literature Review and Hypotheses Development

2.1. Theoretical Framework

Drawing from prior research, this study relies on several theories that form the theoretical framework for understanding the impact of ESG on firm performance.

Stakeholder Theory: First, we rely on the stakeholder theory following Junius et al. (2020), Jorgji et al. (2024), and Wang (2024). This theory, first proposed by Edward Freeman in 1995, asserts that firms that consider the interests of all stakeholders in a business, rather than merely those of their shareholders, perform better in the long run. This entails maintaining good relationships with employees, customers, suppliers, investors, financial institutions, and the community at large, being sensitive to their needs and interests (Freeman, 1984; Jones, 1995). For example, being considerate about business environmental footprint addresses the concerns of stakeholders sensitive to environmental issues, therefore leading to improved regulatory compliance and operational efficiency. Being attentive to labor rights, workplace safety, and community engagement builds trust and reinforces loyalty among employees and the public, which are crucial for business success. Further, good governance practices, such as transparency, accountability, and ethical behavior, promote trust among investors, lenders, and regulators. They also reduce risk and, therefore, enhance firm performance (El Ghoul et al., 2017; Ferrell et al., 2016). We view the adoption of ESG practices as a practical application of the stakeholder theory and argue that these practices should form an integral part of corporate strategies for enduring success.

Signaling Theory: Another important theory widely used in business research is the signaling theory, first introduced by Michael Spence in 1973. This theory, which blends well

and complements the stakeholder theory, maintains that a firm's behavior sends important signals about its performance and prospects, influencing the perceptions of both internal and external stakeholders. According to Spence (1973), signals are activities that influence the beliefs of the observers (the stakeholders) about the underlying attributes of the signaler (the firm). Beyond its many other implications, this theory is particularly relevant when trying to understand the impact of ESG on firm performance (Hu et al., 2023; Zhou et al., 2022). For instance, Verrecchia (1983) and Xu et al. (2023) explain that discretionary disclosures in general are used by firms to minimize information asymmetry. Voluntary ESG disclosures, in particular, signal their commitment to sustainability, which in turn reduces information asymmetry and improves market perception. Dhaliwal et al. (2011) point out that CSR reporting signals a lower risk profile to stakeholders, consequently reducing the firm's cost of capital and improving its performance. Lys et al. (2015) state that accountability reporting is a way for firms to signal their commitment to ethical conduct. They argue that ESG reporting is used by firms to signal their superior performance relative to their peers, leading to increased stakeholder trust and thereby improved financial results.

Legitimacy Theory: The roots of this theory can be traced back to the German philosopher, economist, and founder of modern sociology, Max Weber. He is credited with laying the groundwork for legitimacy theory, which was originally developed as a sociological and political science theory (Weber, 2016). It was further developed by Jürgen Habermas and has since evolved and been applied in various contexts, including corporate governance (Habermas, 1985). This theory explains that one of the main reasons why companies align their activities with societal norms and values is to gain and maintain the approval of their stakeholders. From this perspective, it can be seen as a blend of the stakeholder theory and the signaling theory. Several authors have applied the legitimacy theory in the context of ESG studies. Shin et al. (2023) argue that firms engage in ESG activities and report about them to try and legitimize their existence in a society with certain societal values and expectations. Junius et al. (2020) explain that organizations operate in a context regulated by a societal contract that exists between them and society, and they must demonstrate that their actions, including ESG activities, align with the norms set forth by this contract. By engaging in ESG activities, firms not only ensure their legitimacy and their continued existence but also improve their financial performance by gaining the approval of the broader society and being perceived as socially responsible entities (Jorgji et al., 2024).

Agency theory: The agency theory is often used to explain why ESG scores, and firm performance are sometimes inversely related. This theory, generally attributed to Jensen and Meckling (1976), is not specific to ESG activities. The agency problem exists in any situation where the interests of managers and shareholders are not aligned. Generally speaking, firm managers tend to make decisions that serve their personal interests, such as securing their position, consolidating their power, and increasing their bonuses, rather than those of the shareholders (Demiraj et al., 2024). According to S. P. Lee and Isa (2020), the agency problem can manifest itself in the context of ESG when managers utilize firm resources for ESG projects with their private gain in mind, which often leads to overinvestment to the detriment of shareholder interests—or worse, when managers utilize firm resources to engage in ESG activities, in an attempt to cover their otherwise weak financial performance, a phenomenon called window-dressing (J. Lee & Koh, 2024).

2.2. ESG–Firm Performance Relationship

The ESG relationship with firm performance has been explored since the 1970s. Numerous empirical studies and several reviews have explored the topic in an attempt to establish a connection between these two variables and draw valid conclusions. Friede, Busch, and Bassen, in 2015, conducted an extensive review of prior research, spanning

from 1970 to 2015, and found that nearly half of the studies reported a positive ESG–performance relationship, almost a quarter of them revealed a neutral relationship, around one-tenth reported a negative relationship, and the remaining studies reported mixed results (Friede et al., 2015). In 2021, Whelan, Ulrich, and Clark undertook a similar project, by reviewing ESG–performance research covering the 2015–2020 period. Their findings aligned with those of Friede et al. (2015), showing a consistent trend. In their study, they found similar proportions of studies revealing positive, negative, neutral, or mixed relationships between ESG and firm performance (Whelan et al., 2021).

From 2020, research on this topic has continued unabated, and the pattern of results seems to remain stable over time. For instance, Aydoğmuş et al. (2022) found that the ESG combined score is positively related to both firm value and financial performance. This is also the case for the individual scores of E, S, and G, with the only exception being the E component relationship with firm value, which was found to be insignificant. Bai et al. (2022) and Qu (2023) also revealed a positive relationship between Environmental, Social, and Governance efforts and firm value, identifying financing restrictions as a mediating factor in this relationship, asserting that ESG performance can impact firm value by reducing financing restrictions. Possebon et al. (2024) investigated the impact of ESG on Brazilian firms through their effect on the cost of capital. They found that higher ESG combined scores lead to lower cost of capital, therefore enhancing firm value and firm operational performance. These results were echoed by Ernst and Woithe (2024) who revealed that ESG efforts are rewarded with a lower cost of capital. However, some studies have challenged the prevailing narrative that ESG positively influences performance. For instance, Moussa and Elmarzouky (2024) obtained results that contradict expectations, revealing that for listed UK non-financial firms, higher ESG scores were associated with higher cost of capital and with consequently lower performance. Similarly, Giannopoulos et al. (2024) found a negative association between ESG and financial performance for UK banks, suggesting that ESG efforts inversely influence banking firms' performance, at least in the short term. Other studies have reported mixed results. Saygili et al. (2022), for instance, found that the environmental dimension of ESG disclosures negatively impacts the financial performance of Turkish listed firms, while the social and governance dimensions have a positive impact. Meanwhile, Rojo-Suárez and Alonso-Conde (2023) found no effect of ESG on firm market value in the short run and a negative effect in the long run.

3. Materials and Methods

3.1. Hypotheses

Based on the preceding discussion, it is clear that research on the ESG–firm performance relationship has produced mixed results, warranting further investigation. Moreover, as pointed out by Whelan et al. (2021) in their extensive literature review, studies on the ESG–firm performance relationship involving moderating factors are scarce. Despite the undeniable influence of worldwide governance on business growth and performance, to the best of our knowledge, few studies have used the WGI as moderators in the ESG–firm performance relationship, and we have identified this as an important gap needing to be filled. Based on the literature review and the gap identified, this study aims to test the moderating effect of the WGI on the relationship between ESG scores and firm financial (ROA) and market performance (Tobin's Q). Following the results of most of the prior studies, we anticipate a positive relationship between ESG and firm performance, both financial and market; therefore, we formulate our hypotheses for the study as follows:

H1. *There is a significant relationship between ESG scores and the financial performance of listed European firms, and public governance moderates this relationship.*

H2. *There is a significant relationship between ESG scores and the market performance of listed European firms, and public governance moderates this relationship.*

3.2. Data Sample

With Europe taking the lead or being an important part of many global sustainability initiatives, we decided to test these relationships using data from all listed firms on the European continent with ESG scores available in the Refinitiv database. In addition to the undisputed role of Europe, particularly the European Union, in the global push toward sustainability, we decided to focus on a single region for two more reasons: (a) to minimize the influence of region-specific economic, regulatory, and cultural factors on the relationship under study; (b) to minimize the interference of financial reporting differences among firms operating in different countries, since most European countries have adopted a single set of financial reporting standards, the International Financial Reporting Standards (IFRS), ensuring uniformity and comparability of financial disclosures (Basdekis et al., 2020; Demiraj et al., 2024). After cleaning the data for missing values, our initial dataset comprised 2083 firms and 13,043 firm–year observations, spanning 12 years from 2011 to 2022. However, the final dataset was further reduced to 8902 observations due to the inclusion of lagged variables in the two-stage least squares (2SLS) regression models. These lagged variables, used as instruments to address endogeneity concerns, require data from prior periods, resulting in the loss of observations at the beginning of each firm's time series. Despite this reduction, the number of firms remains unchanged, and the resulting sample maintains a balanced distribution across countries and industries. The use of such a large dataset increases the robustness and applicability of the findings. In Tables 1 and 2, we provide a summary of the firms in our sample, categorized by country and industry. It is important to note that the country representation in our sample was not deliberately controlled or balanced. Rather, it reflects the availability of ESG data in the Refinitiv database, which depends on firms' voluntary ESG disclosure practices. As such, countries with more mature capital markets and stronger ESG reporting cultures (e.g., the UK, Germany, France, and Sweden) are more heavily represented.

Table 1. Number of firms by country.

Country	Count of Firms
Austria	30
Belgium	49
Bulgaria	2
Denmark	54
Finland	75
France	181
Germany	258
Greece	21
Hungary	5
Italy	107
Lithuania	1
Luxembourg	23
Malta	6
Netherlands	54
Norway	72
Poland	30
Portugal	14
Romania	7
Slovenia	2
Spain	63
Sweden	309
Switzerland	165
United Kingdom	541
Other	14
Total	2083

Source: Authors.

Table 2. Number of firms by industry.

Industry	Count of Firms
Academic and Educational Services	3
Basic Materials	166
Consumer	480
Energy	92
Financials	161
Healthcare	197
Industrials	452
Real Estate	135
Technology	331
Utilities	66
Grand Total	2083

Source: Authors.

3.3. Variables

For this study, the variables are selected following previously published research on similar topics. We use ROA and Tobin's Q as independent variables to measure the firms' financial and market performance, respectively. The main independent variable in the model is the ESG composite score sourced from the Refinitiv database, while the six dimensions of the WGI are used as moderating variables. Several other variables, such as liquidity, leverage, size, tangibility, GDP, multinational, and multilisted are used as control variables. In Table 3, we present the complete list of the variables used in this study, along with their formulas where applicable, and the supporting literature. We then provide a detailed explanation of the main variables of interest.

Dependent Variable. The dependent variable in our study is firm performance. In evaluating firm performance, like multiple prior studies, we focus on its two major dimensions: financial performance and market performance. Following several other authors, we use ROA as a proxy of financial performance (Demiraj et al., 2022; Habibniya et al., 2022; Dsouza et al., 2023; Hu et al., 2023; Shin et al., 2023; Jorgji et al., 2024) and Tobin's Q as a proxy of market performance (Aydoğmuş et al., 2022; Zhou et al., 2022; Jorgji et al., 2024; Possebon et al., 2024). ROA, which is calculated by dividing net income by total assets, measures the overall efficiency of the firm. It reflects how well the firm is using its assets to generate profits. Tobin's Q, on the other hand, is a commonly used indicator of the firm's performance in the capital markets. The original formula, developed by James Tobin, divides the firm's assets market value by their replacement cost. However, like many other studies, we use the modified Tobin's Q formula due to the lack of information on assets' market value and replacement cost. In the modified formula, the market value of equity and total liabilities are used as a substitute for the market value of assets, while the book value of assets is used as a substitute for their replacement cost.

Independent Variable. The independent variable in our study is firm's ESG performance. Obtaining accurate and up to date ESG scores is a massive and challenging task. Therefore, we rely on the ESG scores retrieved from the highly respected Refinitiv database, which aggregates data from multiple dimensions of sustainability and governance. These scores are widely used in research due to Refinitiv's reputation for a meticulous approach (Aydoğmuş et al., 2022; De la Fuente et al., 2022; Rojo-Suárez & Alonso-Conde, 2023; Possebon et al., 2024). Refinitiv's ESG scores are based on over 630 ESG metrics, of which a curated subset of the most comparable and material indicators is selected per industry. These are organized into ten categories, forming three pillar scores—Environmental, Social, and Governance—which are then combined into an overall ESG score using a percentile rank methodology relative to industry peers (LSEG, 2023). The ESG scores have been used

in research either as a composite score or as separate E, S, and G dimensions. However, considering that this study employs two performance dimensions as dependent variables, and six Worldwide Governance Indicators as moderating variables, we opted against using the three ESG components separately, as this would result in an excessively high number of regression models.

Table 3. Description of variables.

Type	Variable Name	Description and Formula	Supporting Literature
Independent variable	ESG	Environmental, Social, and Governance composite score (sourced from the Refinitiv database)	Aydoğmuş et al. (2022); De la Fuente et al. (2022); Rojo-Suárez and Alonso-Conde (2023); Possebon et al. (2024)
Dependent variables	ROA	Return on Assets (Proxy of Financial Performance) Net Income/Total Assets	Demiraj et al. (2022); Habibniya et al. (2022); Dsouza et al. (2023); Hu et al. (2023); Shin et al. (2023); Jorgji et al. (2024)
	Tobin's Q	Proxy of Market Performance (Market Value of Equity + Total Liabilities)/Total Assets	Aydoğmuş et al. (2022); Zhou et al. (2022); Jorgji et al. (2024); Possebon et al. (2024)
Moderating Variables	WGIs	Worldwide Governance Indicators	Alsaleh et al. (2021); Alsaleh and Abdul-Rahim (2021); Wahab et al. (2021); Puente De La Vega Caceres et al. (2024)
Control Variables	Liquidity	Total Current Assets/Total Current Liabilities	S. P. Lee and Isa (2020); Habibniya et al. (2022); Gharaibeh (2023); Shin et al. (2023); Demiraj et al. (2024); Possebon et al. (2024)
	Leverage	Total Debt/Total Assets	Aydoğmuş et al. (2022); Can et al. (2023); Dsouza et al. (2023); Shin et al. (2023); J. Lee and Koh (2024); Possebon et al. (2024)
	Size	Natural Logarithm of Total Assets	Aydoğmuş et al. (2022); Demiraj et al. (2022); Zhou et al. (2022); Can et al. (2023); Possebon et al. (2024)
	Tangibility	Fixed Assets/Total Assets	Can et al. (2023); Shin et al. (2023); Possebon et al. (2024)
	GDP	Natural Logarithm of GDP in a country of incorporation	Ngarava et al. (2023); Shin et al. (2023); Demiraj et al. (2024)
	Multinational	Dummy Variable indicating whether the firm operates in more than one country	Shin et al. (2023)
	Multilisted	Dummy Variable indicating whether the firm is listed on more than one stock exchange	A variation of multinational following Shin et al. (2023)

Moderating Variables. The uniqueness of our study rests on the use of the Worldwide Governance Indicators (WGIs) as moderators in the ESG–performance relationship. Good governance is accepted as essential for economic growth, human capital development and social bonding (Acemoglu et al., 2001; Rothstein & Teorell, 2008; Kaufmann et al., 2010). In 1999, researchers at World Bank developed what is now commonly known as the Worldwide Governance Indicators, a set of metrics to evaluate the quality of various governance aspects in more than 200 countries. Despite being perception-based criteria, the WGI are used extensively by researchers, analysts, policymakers and governments (Handoyo, 2023). The WGI are a combination of six important dimensions to capture the multi-dimensional nature of governance, i.e., Voice and Accountability (VA), Political Stability and Absence of Violence (PSAV), Government Effectiveness (GE), Regulatory Quality (RQ), Rule of Law (RL), and Control of Corruption (CC). VA is an indicator of the citizens' influence in the selection of their

government. It also includes the state of basic freedoms in a country, such as freedom of speech, association, and media. The PSAV indicator measures the perceived risk of political turmoil, including political violence or terrorism. GE is an indicator of the efficiency and quality of public services, as well as the civil service sector's capacity and independence from undue political influence. The RQ indicator assesses the government's ability to establish and implement a regulatory framework that promotes private sector growth. RL reflects the level of public trust in the legal system and its ability to enforce rules and norms, including contracts, property rights, the competence of law enforcement agencies, and the judicial system. Finally, the CC indicator measures the perceived misuse of public authority for personal gain, which includes all forms of corruption, as well as the undue influence of the private sector on the government. The WGI dataset is updated every year to provide a complete picture of the governance landscape in a country (World Bank, 2020). In this study, the WGI dimensions are used separately as potential moderators in the ESG–performance relationship.

Control Variables. In addition to the dependent, independent, and moderating variables, we have included in our models several other control variables to capture the effects of other factors on firm financial and market performance. We use the liquidity ratio (total current assets/total current liabilities), a widely recognized variable for its impact on firm performance and commonly used in research investigating firm performance (S. P. Lee & Isa, 2020; Habibniya et al., 2022; Gharaibeh, 2023; Shin et al., 2023; Demiraj et al., 2024; Possebon et al., 2024). Liquidity reflects a firm's ability to quickly convert its current assets into cash to meet its short-term obligations. Liquidity is considered vital for the smooth operation of the firm, as it can affect its risk profile and access to financing. Leverage (total debt/total assets) is another commonly used variable in performance-related research (Aydoğmuş et al., 2022; Can et al., 2023; Dsouza et al., 2023; Shin et al., 2023; J. Lee & Koh, 2024; Possebon et al., 2024). It represents the percentage of debt used by a firm to finance its operations and growth, relative to its total assets. Firms can use leverage to their advantage, but overreliance on debt can increase financial risk and produce undesired results. Therefore, leverage has long been recognized in literature as a key determinant of firm financial and market performance. Firm size (natural logarithm of total assets) is another known factor influencing a firm's profitability that cannot be ignored (Aydoğmuş et al., 2022; Demiraj et al., 2022; Zhou et al., 2022; Can et al., 2023; Possebon et al., 2024). Research has shown that larger firms are more profitable than their smaller peers for various reasons, including economies of scale, market power, operational efficiency, risk diversification strategies, and superior access to financing. Tangibility (fixed assets/total assets), also called fixed asset intensity, is used to measure the reliance of firms on capital expenditures. It is commonly used in similar studies since it affects firm performance in multiple ways, including through operational efficiency, risk profile and access to financing, protection of market share through barriers of entry, etc. (Can et al., 2023; Shin et al., 2023; Possebon et al., 2024). GDP (natural logarithm of GDP) is used to account for macroeconomic factors shaping the economic environment in which firms operate, therefore influencing firm performance (Ngarava et al., 2023; Shin et al., 2023; Demiraj et al., 2024). Lastly, due to the globalization of the economy and the capital markets, it is common for firms to operate in more than one country or for their stock to be listed on multiple stock exchanges. Therefore, we use two dummy variables, multinational and multilisted, taking values of 0 and 1, respectively, to account for this fact (Shin et al., 2023).

Table 4 presents a summary of descriptive statistics for our variables, and Table 5 presents the correlation matrix showing correlations, significance, and potential multicollinearity among the variables.

Table 4. Descriptive statistics.

Variable	Observations	Mean	Std. Dev.	Min	Max
ROA	13,043	0.042439	0.160469	−3.25534	4.362205
Tobin's Q	13,043	1.54823	1.433358	0.313978	7.49563
ESG	13,043	51.38857	20.76408	9.199265	88.15813
VA	13,043	1.331997	0.232369	−1.64287	1.774868
PSAV	13,043	0.661597	0.356814	−1.28532	1.480306
GE	13,043	1.435508	0.408726	−0.3423	2.284573
RQ	13,043	1.49263	0.363501	−0.41842	2.226899
RL	13,043	1.501297	0.42784	−0.86664	2.124782
CC	13,043	1.627658	0.536096	−1.02031	2.402744
Liquidity	13,043	1.885271	1.775312	0.278221	10.44227
Leverage	13,043	0.249016	0.188436	−0.00169	3.154412
Size	13,043	21.49363	1.859752	11.67408	27.58041
Tangibility	13,043	0.601465	0.229799	0	1
GDP	13,043	27.91272	0.967013	23.12944	30.51934
Multinational	13,043	0.664188	0.472292	0	1
Multilisted	13,043	0.90171	0.297718	0	1

From the analysis of the above statistics, we identified variables with potential outliers, including Liquidity, ESG, and Tobin's Q. To address these outliers and minimize their impact on the analysis, we applied a 2% winsorization on these variables to ensure that extreme values are adjusted to fall within the acceptable range without entirely discarding valuable data.

The pairwise correlation matrix is analyzed to evaluate the strength, direction, and significance of the linear relationships among variables. It is primarily used to detect issues with multicollinearity within the model variables. From the analysis of Table 5, no multicollinearity issues were detected among the variables. The only variables that exhibit high intercorrelation are the six WGI dimensions (Evans, 1996), which is to be expected since they all measure different facets of a common construct: country governance. To avoid multicollinearity issues with these variables, these dimensions are included in separate models rather than combined in the same model. This is a widely accepted and commonly used approach in the literature when dealing with highly correlated variables (e.g., Shin et al., 2023; Luo et al., 2024). Additionally, in general, all variables in the model are significantly correlated with the dependent variables, supporting their relevance and justifying their inclusion in the analysis.

Table 5. Pairwise correlation matrix.

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	VIF
ROA (1)	1																
Tobin's Q (2)	0.147 ***	1															
ESG (3)	0.088 ***	−0.121 ***	1														1.76
VA (4)	−0.016 *	0.127 ***	−0.036 ***	1													1.09
PSAV (5)	−0.059 ***	0.113 ***	−0.070 ***	0.687 ***	1												1.52
GE (6)	0.012	0.124 ***	−0.030 ***	0.823 ***	0.625 ***	1											1.06
RQ (7)	0.041 ***	0.133 ***	−0.081 ***	0.768 ***	0.486 ***	0.854 ***	1										1.03
RL (8)	0.026 ***	0.111 ***	−0.041 ***	0.831 ***	0.554 ***	0.946 ***	0.916 ***	1									1.03
CC (9)	0.012	0.151 ***	−0.080 ***	0.861 ***	0.582 ***	0.896 ***	0.926 ***	0.939 ***	1								1.03
Liquidity (10)	−0.029 ***	0.203 ***	−0.236 ***	0.021 **	0.014	0.024 ***	0.052 ***	0.026 ***	0.052 ***	1							1.2
Leverage (11)	−0.131 ***	−0.139 ***	0.130 ***	−0.065 ***	−0.023 ***	−0.079 ***	−0.123 ***	−0.097 ***	−0.107 ***	−0.319 ***	1						1.2
Size (12)	0.125 ***	−0.355 ***	0.635 ***	−0.090 ***	−0.097 ***	−0.035 ***	−0.102 ***	−0.052 ***	−0.130 ***	−0.257 ***	0.154 ***	1					2.02
Tangibility (13)	0.024 ***	−0.256 ***	0.072 ***	−0.059 ***	−0.061 ***	−0.046 ***	−0.019 **	−0.028 ***	−0.043 ***	−0.236 ***	0.304 ***	0.298 ***	1				1.25
GDP (14)	0.055 ***	−0.055 ***	0.031 ***	−0.262 ***	−0.579 ***	−0.221 ***	−0.018 **	−0.130 ***	−0.099 ***	−0.002	−0.024 ***	0.085 ***	0.003	1			1.54
Multinational (15)	0.063 ***	−0.002	0.054 ***	0.025 ***	0.002	0.053 ***	0.008	0.041 ***	0.014	−0.048 ***	0.013	0.062 ***	0.019 **	−0.090 ***	1		1.02
Multilisted (16)	0.057 ***	−0.006	0.315 ***	0.089 ***	0.092 ***	0.113 ***	0.022 **	0.079 ***	0.025 ***	−0.049 ***	0.026 ***	0.350 ***	0.060 ***	−0.149 ***	0.022 **	1	1.22

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

3.4. Research Model

While the correlation matrix provides a preview of the expected relationships between the variables, we rely on regression analysis for a more robust and detailed examination of these relationships. To this end, we opted for 2SLS models over panel regression models for two key reasons. First, the data are not fully paneled in nature due to the presence of time-invariant variables. Second, 2SLS models address endogeneity, which was identified using the Durbin–Wu–Hausman test. The Durbin–Wu–Hausman is used to test for the presence of endogeneity in a regression model and the need for an instrumental variable regression model, such as 2SLS. Endogeneity occurs when explanatory variables are correlated with the error term in the regression, leading to biased and inconsistent estimates. A 2SLS regression corrects endogeneity by utilizing instrumental variables. In our models, we use lagged values of the ESG variable as instrumental variables. This approach is widely used in empirical research, as lagged values are typically correlated with current ESG behavior (instrument relevance) but uncorrelated with the contemporaneous error term (instrument exogeneity), thus satisfying the assumptions required for valid instrumentation. As shown in the results section, our p-value of less than 5% obtained from the Durbin–Wu–Hausman test justifies the use of the 2SLS approach. However, since 2SLS is an instrumental variables estimation technique, we must ensure that the instrumental variables are sufficiently correlated with the endogenous variables. Otherwise, the model risks being under-identified, leading to unreliable estimates of the endogenous variables. This was achieved through the Anderson under-identification test. Our p-values of less than 5% obtained from the Anderson test confirm that the models are identified and that the instruments used are strong and relevant. All data processing and regression analyses were conducted using the STATA statistical software package, version 14.

We hypothesize that ESG scores have a significant impact on the financial and market performance of listed European firms, with public governance serving as a moderating factor in these relationships. Therefore, our models are formulated as follows:

$$\mathrm{ROA}_{it+1} = \alpha_0 + \alpha_1 \mathrm{ESG}_{it} + \alpha_2 \left(\mathrm{ESG}_{it} \times \mathrm{WGI}_{it}\right) + \alpha_3 \mathrm{WGI}_{it} + \alpha_4 \text{Control Variables} + \alpha_5 \mathrm{Year}_{it} + \alpha_6 \mathrm{Industry}_{it} + \alpha_7 \mathrm{Country}_{it} + \varepsilon_{it}$$

$$\text{Tobin's } \mathrm{Q}_{it+1} = \beta_0 + \beta_1 \mathrm{ESG}_{it} + \beta_2 \left(\mathrm{ESG}_{it} \times \mathrm{WGI}_{it}\right) + \beta_3 \mathrm{WGI}_{it} + \beta_4 \text{Control Variables} + \beta_5 \mathrm{Year}_{it} + \beta_6 \mathrm{Industry}_{it} + \beta_7 \mathrm{Country}_{it} + \varepsilon_{it}$$

where the following apply:

ROA and Tobin's Q: Dependent variables.

ESG: Independent variable.

WGI: Moderating variable (each of the six WGI dimensions used in separate models).

Liquidity, Leverage, Size, Tangibility, GDP, Multinational (1), Multilisted (2): Control Variables.

α_0, α_1,. . ., α_7; β_0, β_1,. . ., β_7: Coefficients.

ε_{it}: Error terms.

Given that the six WGI dimensions are used as individual scores in separate models rather than a single composite score, 12 models are obtained overall.

4. Results and Discussion

4.1. ESG—Financial Performance (ROA) Relationship

Table 6 summarizes the results of the 2SLS models used to estimate Equation (1) with financial performance (ROA) as a dependent variable. To address potential multicollinearity issues among the six WGI dimensions, each dimension is included in a separate model. Consequently, Table 6 contains six columns, each representing the results of a model with ROA as the dependent variable and one WGI dimension as the moderating variable. Along with the results of the regression analysis, the *p*-values of the Durbin–Wu–Hausman

endogeneity test and the Anderson LM test are provided. The purpose and application of these tests are explained in the research model section.

Table 6. 2SLS regression results for the ESG–ROA relationship.

	MODERATOR: The Six WGI Individual Dimensions ($WGI_{1–6}$)					
VARIABLES	**(1) Voice and Accountability**	**(2) Political Stability**	**(3) Government Effectiveness**	**(4) Regulatory Quality**	**(5) Rule of Law**	**(6) Control of Corruption**
ESG	−0.00438 ***	−0.00310 ***	−0.00283 ***	−0.00238 ***	−0.00225 ***	−0.00233 ***
	(0.0011)	(0.0005)	(0.0008)	(0.0009)	(0.0008)	(0.0006)
ESG × $WGI_{1–6}$	0.00347 ***	0.00389 ***	0.00201 ***	0.00169 ***	0.00155 ***	0.00148 ***
	(0.0008)	(0.0005)	(0.0005)	(0.0006)	(0.0005)	(0.0003)
$WGI_{1–6}$	−0.176 ***	−0.217 ***	−0.0979 ***	−0.0739 **	−0.0721 ***	−0.0713 ***
	(0.0427)	(0.0292)	(0.0267)	(0.0318)	(0.0253)	(0.0189)
Liquidity	−0.00533 ***	−0.00664 ***	−0.00564 ***	−0.00558 ***	−0.00560 ***	−0.00560 ***
	(0.0011)	(0.0011)	(0.0011)	(0.0011)	(0.0011)	(0.0011)
Leverage	−0.0918 ***	−0.0815 ***	−0.0905 ***	−0.0920 ***	−0.0918 ***	−0.0908 ***
	(0.0102)	(0.0105)	(0.0102)	(0.0101)	(0.0102)	(0.0102)
Size	0.00217	0.00800 ***	0.00332 **	0.00299 **	0.00329 **	0.00351 **
	(0.0014)	(0.0019)	(0.0015)	(0.0014)	(0.0015)	(0.0015)
Tangibility	0.0119	−0.00524	0.00889	0.0111	0.0097	0.0102
	(0.0082)	(0.0089)	(0.0083)	(0.0082)	(0.0083)	(0.0083)
GDP	0.0116 ***	0.00908 ***	0.0116 ***	0.0105 ***	0.0113 ***	0.0114 ***
	(0.0019)	(0.0022)	(0.0018)	(0.0018)	(0.0018)	(0.0018)
Multinational	0.0192 ***	0.0182 ***	0.0185 ***	0.0190 ***	0.0185 ***	0.0193 ***
	(0.0036)	(0.0036)	(0.0036)	(0.0036)	(0.0036)	(0.0036)
Constant	−0.0903	−0.186 ***	−0.197 ***	−0.194 ***	−0.222 ***	−0.223 ***
	(0.0703)	(0.0680)	(0.0593)	(0.0611)	(0.0580)	(0.0559)
Observations	8902	8902	8902	8902	8902	8902
R-squared	0.0290	0.0170	0.0250	0.0280	0.026	0.027
Controls year effect	Yes	Yes	Yes	Yes	Yes	Yes
Controls industry effect	Yes	Yes	Yes	Yes	Yes	Yes
Controls country effect	Yes	Yes	Yes	Yes	Yes	Yes
Anderson LM statistic *p*-value	0.000	0.000	0.000	0.000	0.000	0.000
Durbin–Wu–Hausman *p*-value	0.010	0.000	0.003	0.015	0.003	0.002

Standard errors in parentheses *** $p < 0.01$, ** $p < 0.05$.

Table 6 shows that the ESG standalone effect on the firm's financial performance is negative and significant at 1% across all six models. The ESG–financial performance relationship is dynamic and multifaceted. On the one hand, engaging in ESG activities entails additional costs for firms, which is expected to have an adverse effect on financial performance and may be further exacerbated by the agent–principal conflict, as suggested by the agency problem theory. On the other hand, stakeholder theory, signaling theory, and legitimacy theory argue that ESG activities positively influence financial performance, primarily due to improved perceptions among stakeholders and society at large. Therefore, the aggregate effect of ESG on ROA is a matter of which of these two opposing forces, costs or benefits, will dominate. The results obtained from our models seem to suggest that when public governance is not factored in, the costs associated with ESG implementations are not offset by their benefits. This imbalance may occur when the expected ESG benefits fail to materialize, at least not to the expected level, or when the associated costs are excessively high, especially under the influence of the principal–agent conflict. This is consistent with studies reporting negative or mixed ESG–performance relationships under certain conditions (Friede et al., 2015; Whelan et al., 2021; Moussa & Elmarzouky, 2024).

The results also show that the WGI standalone effect on the firm's financial performance is negative and significant at 1% across all six models, suggesting that stringent public regulations and oversight result in greater compliance costs, higher regulatory burdens, and operational constraints, which negatively affect financial profitability, particularly in the short term.

However, the interaction term (ESG × WGI) is positive, indicating that the effect of the ESG on financial performance becomes positive under the moderating influence of the WGI. Several explanations can be proposed for this combined effect, as opposed to the standalone effect. First, strong public governance can mitigate the agency problem, orienting ESG-related investments towards genuine value-enhancing activities rather than self-serving initiatives or window-dressing. Second, stakeholders have greater confidence and trust in firms operating under stronger governance frameworks, particularly regarding their ESG activities and commitments. This improved perception leads to improved financial performance in line with the stakeholder theory. Third, considering legitimacy theory, in jurisdictions with stronger public governance, ESG initiatives may be viewed as more legitimate and aligned with societal norms and expectations, earning the approval of the stakeholders and the general public. This leads to advantages that translate into enhanced financial performance. Finally, the signaling effect of ESG activities, as proposed by the signaling theory, is only strengthened in the presence of strong public governance. Firms' ESG disclosures are likely to be interpreted as more credible in well-regulated societies, attracting socially responsible investments that contribute to improved financial performance. These findings align with Luo et al. (2024), who also report that selected governance indicators significantly strengthen the positive impact of ESG on financial performance.

Based on these findings, hypothesis 1 of this study is supported. While ESG engagement alone appears to negatively impact financial performance, the presence of strong public governance moderates this effect, making it positive. This confirms that institutional quality plays a crucial role in determining the financial outcomes of ESG initiatives.

4.2. ESG—Market Performance (Tobin's Q) Relationship

Table 7 summarizes the results of the 2SLS models used to estimate Equation (2) with market performance (Tobin's Q) as the dependent variable. In Table 7, each of the six columns represents the results of a model with Tobin's Q as the dependent variable and one WGI dimension as the moderating variable.

Table 7 shows that unlike the findings in the ROA-based models discussed earlier, ESG has a positive and highly significant standalone effect on Tobin's Q across all six models. This suggests that, from a market perspective, ESG activities are well-received by investors, who may view them as indicators of long-term stability, ethical business practices, and future financial resilience. These results align with stakeholder theory, signaling theory, and legitimacy theory, which argue that firms engaging in ESG initiatives enhance their corporate reputation, attract socially responsible investors, and strengthen stakeholder trust, all of which contribute to higher market valuations. Regarding agency theory, the positive ESG–Tobin's Q relationship suggests that investors may perceive ESG engagement as a mechanism to reduce agency costs and align managers' interests with those of shareholders. ESG initiatives, particularly those involving transparency, ethical business practices, and corporate social responsibility, can serve as disciplinary mechanisms that constrain managerial opportunism, thereby improving investor confidence. Moreover, beyond signaling a commitment to mitigating agency problems, ESG engagement may also indicate that firms have already addressed or lessened these issues, as their participation in governance, transparency, and social responsibility reflects a corporate environment where agency conflicts are under control. These results are consistent with the broader literature, reporting a positive ESG–market performance link (Friede et al., 2015; Whelan et al., 2021; Aydoğmuş et al., 2022; Bai et al., 2022; Luo et al., 2024), where ESG efforts are perceived as value-enhancing by investors.

Table 7. 2SLS regression results for the ESG—Tobin's Q relationship.

	MODERATOR: The Six WGI Individual Dimensions ($WGI_{1–6}$)					
VARIABLES	**(1) Voice and Accountability**	**(2) Political Stability**	**(3) Government Effectiveness**	**(4) Regulatory Quality**	**(5) Rule of Law**	**(6) Control of Corruption**
ESG	0.0457 ***	0.0504 ***	0.0498 ***	0.0525 ***	0.0493 ***	0.0212 ***
	(0.0088)	(0.0044)	(0.0064)	(0.0073)	(0.0062)	(0.0052)
ESG × $WGI_{1–6}$	−0.0255 ***	−0.0395 ***	−0.0241 ***	−0.0260 ***	−0.0231 ***	−0.00757 ***
	(0.0063)	(0.0044)	(0.0039)	(0.0045)	(0.0036)	(0.0028)
$WGI_{1–6}$	1.929 ***	2.572 ***	1.665 ***	1.773 ***	1.537 ***	0.659 ***
	(0.3390)	(0.2400)	(0.2130)	(0.2520)	(0.2020)	(0.1530)
Liquidity	0.0597 ***	0.0787 ***	0.0628 ***	0.0616 ***	0.0625 ***	0.0532 ***
	(0.0084)	(0.0089)	(0.0085)	(0.0085)	(0.0085)	(0.0086)
Leverage	−0.351 ***	−0.522 ***	−0.381 ***	−0.310 ***	−0.355 ***	−0.293 ***
	(0.0799)	(0.0844)	(0.0809)	(0.0798)	(0.0803)	(0.0779)
Size	−0.316 ***	−0.408 ***	−0.337 ***	−0.322 ***	−0.332 ***	−0.256 ***
	(0.0109)	(0.0151)	(0.0116)	(0.0113)	(0.0116)	(0.0112)
Tangibility	−0.670 ***	−0.427 ***	−0.603 ***	−0.693 ***	−0.646 ***	−0.514 ***
	(0.0642)	(0.0713)	(0.0657)	(0.0647)	(0.0653)	(0.0683)
GDP	0.0126	0.0732 ***	0.00145	−0.0291 **	−0.0167	0.00142
	(0.0146)	(0.0176)	(0.0145)	(0.0144)	(0.0144)	(0.0141)
Multinational	0.392 ***	0.247 ***	0.314 ***	0.391 ***	0.350 ***	0.455 ***
	(0.0588)	(0.0632)	(0.0610)	(0.0587)	(0.0598)	(0.0568)
Constant	4.882 ***	5.416 ***	5.684 ***	6.036 ***	6.205 ***	4.943 ***
	(0.5470)	(0.5460)	(0.4650)	(0.4800)	(0.4560)	(0.4310)
Observations	8902	8902	8902	8902	8902	8902
R-squared	0.1760	0.1230	0.1630	0.1660	0.1630	0.2210
Controls year effect	Yes	Yes	Yes	Yes	Yes	Yes
Controls industry effect	Yes	Yes	Yes	Yes	Yes	Yes
Controls country effect	Yes	Yes	Yes	Yes	Yes	Yes
Anderson LM statistic *p*-value	0.000	0.000	0.000	0.000	0.000	0.000
Durbin–Wu–Hausman *p*-value	0.0003	0.000	0.000	0.000	0.000	0.032

Standard errors in parentheses *** $p < 0.01$, ** $p < 0.05$.

However, the interaction term (ESG × WGI) is negative and significant across all models, suggesting that strong public governance weakens the positive market perception of ESG activities. One possible explanation is that in jurisdictions with strict regulatory oversight and well-developed governance structures, ESG compliance becomes more of a baseline expectation rather than a differentiating factor. When ESG is heavily regulated, firms may no longer gain a competitive advantage from ESG commitments, as these practices become standard rather than a voluntary strategic decision. In environments with strong regulatory institutions, firms may engage in ESG initiatives primarily for compliance purposes rather than to gain strategic benefits. As a result, market participants may perceive ESG disclosures as routine rather than value-enhancing, diminishing their signaling effect and leading to a weaker association between ESG and market performance. Also, regarding the agency theory, when strong public governance is present, external regulatory oversight already serves as a constraint on managerial discretion, reducing the need for ESG as an internal governance tool. This could explain why ESG's impact on market valuation is weaker in high-governance environments—investors perceive the role of ESG in mitigating agency conflicts as redundant in jurisdictions with stringent governance frameworks.

Furthermore, the positive standalone effect of WGI on Tobin's Q suggests that investors favor firms operating in well-governed environments, as strong governance structures reduce political and regulatory uncertainty, enhance investor protection, and promote business stability. These findings reinforce the corporate governance perspective, which emphasizes that firms benefit from well-functioning institutional frameworks, particularly in terms of attracting capital and maintaining investor confidence.

In contrast to the ROA-based models, where stringent governance appeared to increase regulatory costs and lower short-term profitability, the market-based perspective suggests that strong governance is perceived as a stabilizing factor by investors. This divergence

highlights an important nuance: while firms may experience higher compliance costs under strict governance frameworks, these costs do not necessarily reduce market valuations, as investors may prioritize long-term governance stability over short-term financial burdens.

In summary, Tobin's Q models suggest that ESG activities enhance market performance, supporting the argument that investors reward firms that engage in responsible corporate practices. However, this effect is dampened in environments with strong governance frameworks, where ESG compliance is expected rather than rewarded. Our findings differ from those of Luo et al. (2024), who reported a positive interaction between ESG and selected governance indicators on Tobin's Q. However, it is important to note that in their estimates, the standalone effects of ESG and governance indicators were statistically insignificant ($p > 0.1$), and the interaction terms demonstrated generally weak significance levels (mostly at $p < 0.1$). In contrast, our findings show a consistently strong and statistically significant negative moderating effect of WGI across all models.

Based on these findings, Hypothesis 2 is partially supported. While ESG engagement positively impacts market performance, the moderating effect of public governance weakens this relationship, suggesting that in well-governed environments, ESG compliance becomes an expectation rather than a competitive advantage. This highlights the nuanced role of governance in shaping ESG-related market outcomes.

5. Conclusions

This study aimed to investigate the impact of Environmental, Social, and Governance (ESG) engagement on firm performance, considering both financial performance (ROA) and market performance (Tobin's Q) as dependent variables. Additionally, the study examined the moderating role of public governance, proxied by the World Governance Indicators (WGIs), to determine whether institutional quality influences the ESG–performance relationship. Using 2SLS regression models to address potential endogeneity concerns, the study tested these relationships across six dimensions of governance, analyzing each dimension separately to avoid multicollinearity issues. The results of the ROA-based models revealed a negative and statistically significant standalone effect of ESG on financial performance across all six models. This suggests that, when public governance is not accounted for, the costs associated with ESG investments outweigh their immediate financial benefits. This finding aligns with agency theory, which posits that ESG-related expenditures can exacerbate the principal–agent conflict, particularly when managers prioritize non-financial objectives at the expense of shareholder value. However, the interaction term between ESG and WGI was positive and significant, indicating that strong public governance helps mitigate agency problems and redirect ESG investments toward more value-enhancing activities. Under effective governance frameworks, ESG engagement is perceived as more credible, leading to improved financial performance, as suggested by stakeholder theory, legitimacy theory, and signaling theory.

Conversely, the Tobin's Q-based models provided contrasting results, with ESG showing a positive and highly significant standalone effect on market performance. This suggests that investors generally reward ESG engagement, viewing it as a signal of long-term stability, ethical corporate behavior, and risk mitigation. The findings support signaling theory, which argues that firms engaging in voluntary ESG disclosures enhance their reputational capital, attracting socially responsible investors. Additionally, from an agency theory perspective, investors may perceive ESG activities as a governance tool that reduces managerial opportunism, thus strengthening investor confidence. However, unlike the ROA models, the interaction between ESG and WGI was negative and significant in the Tobin's Q models, suggesting that in well-governed environments, ESG compliance becomes an expectation rather than a competitive advantage. Investors in these jurisdictions may perceive ESG

engagement as routine rather than a value-enhancing differentiation strategy, leading to a weaker ESG–market valuation relationship.

The findings contribute to several theoretical perspectives. First, they offer empirical support for agency theory, demonstrating that ESG engagement alone does not guarantee financial benefits, particularly when public governance is weak. The negative ESG–ROA relationship suggests that ESG-related costs can be substantial, reinforcing concerns over agency conflicts. However, the positive ESG–Tobin's Q relationship aligns with signaling theory, indicating that ESG engagement is positively perceived in capital markets, even if it does not immediately translate into higher profitability. Additionally, the study reinforces stakeholder and legitimacy theories, particularly in the context of strong governance environments, where ESG initiatives gain credibility and enhance firm performance. Finally, the contrasting results between ROA and Tobin's Q highlight the importance of distinguishing between short-term financial performance and long-term market valuation when assessing ESG outcomes.

From a managerial perspective, the findings suggest that firms should strategically approach ESG investments by balancing their costs and expected benefits. While ESG engagement may not always lead to immediate financial gains, particularly in low-governance environments, it can improve market perception and attract long-term investors. Therefore, firms should focus on transparent ESG disclosures and align their sustainability efforts with long-term corporate strategy rather than short-term profitability targets. Additionally, regulators and policymakers should recognize that while strong governance frameworks enhance the credibility of ESG efforts, they may also diminish the market differentiation advantage of ESG engagement. This suggests that firms operating in high-governance environments must go beyond mere compliance and focus on innovative, value-driven ESG strategies to maintain a competitive edge.

Despite its contributions, this study has some limitations that offer avenues for future research. First, while industry effects are accounted for in all regression models through the inclusion of industry variables, the study does not present industry-specific findings. Future research could examine whether certain industries benefit more from ESG engagement than others by conducting sector-level analyses. While we considered sectoral analysis, doing so would have required estimating 36 to 48 models, given the twelve models already tested, making it impractical for a single study. We recommend this as a direction for larger-scale or global studies. Second, the study utilizes ROA and Tobin's Q as performance measures, but future research could explore alternative indicators, such as stock price volatility, credit ratings, or customer loyalty metrics, to provide a more comprehensive and nuanced understanding of ESG's impact. Third, our sample includes all European firms with available ESG scores in the Refinitiv database; therefore, the country representation is uneven. This is primarily due to the voluntary nature of ESG disclosures, which vary by country and firm. While this offers a realistic picture of ESG reporting practices across Europe, it may also introduce sample imbalance. Future studies could explore methods to adjust for this uneven representation or examine whether the effects observed hold across subgroups or more balanced datasets. Fourth, while we analyze each of the six WGIs separately to avoid multicollinearity, this approach does not capture the holistic impact of governance as a unified construct. This is a trade-off we acknowledge. The World Bank does not publish a composite WGI score and constructing one would be a complex and challenging task. Nevertheless, we note this as a limitation of the study and suggest that future research explore methods to assess overall governance quality while preserving interpretability.

In conclusion, this study provides a nuanced understanding of the ESG–performance relationship, showing that ESG engagement has differing effects on financial and market

performance, which are further influenced by public governance quality. While ESG negatively impacts short-term financial profitability, it positively influences market valuation, reflecting its perceived long-term benefits. The moderating role of governance underscores the importance of institutional quality in shaping ESG outcomes, emphasizing the need for firms to strategically integrate ESG into their corporate frameworks. As ESG continues to shape corporate decision-making, further research is essential to explore contextual factors, industry dynamics, and alternative performance indicators that can refine our understanding of ESG's role in modern business environments.

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