Research Article

ESG Performance and Firm Financial Outcomes: A Cross-Country Analysis of Developed and Emerging Markets

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This study investigates the relationship between Environmental, Social, and Governance (ESG) performance and firm financial performance across a diverse cross-country sample of 2,200 firms drawn from 12 developed and 7 emerging economies over the period 2009–2022. The principal objective is to assess whether ESG engagement acts as a value-enhancing strategy, and to what extent this relationship is moderated by institutional contexts, economic development, and regulatory structures. Using a comprehensive panel dataset and addressing endogeneity through Two-Stage Least Squares (2SLS) estimation, the analysis employs multiple financial performance metrics—Return on Assets (ROA), Tobin's Q, Return on Equity (ROE), and Operating Cash Flow to Total Assets (OCF/TA). The findings confirm a statistically significant and economically meaningful positive association between ESG performance and firm outcomes, particularly in developed markets. Disaggregated analysis reveals that environmental factors are more salient in emerging economies, while social and governance dimensions exert greater influence in developed settings. These findings provide relevant insights for managers, regulators, and investors seeking to align ESG objectives with firm performance across institutional environments.

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1. Introduction

Over the past two decades, the integration of Environmental, Social, and Governance (ESG) considerations into corporate strategy has moved from the margins of stakeholder discourse to the mainstream of financial and managerial decision-making. ESG indicators now form a critical part of risk evaluation, capital allocation, and long-term value creation. Although a large body of empirical research has demonstrated the positive impact of ESG engagement on firm performance[1][2], the evidence is largely skewed toward developed markets, where institutional environments, regulatory norms, and investor pressures tend to support the adoption of sustainability practices[3].

This study addresses an important empirical and policy gap by examining the performance implications of ESG practices across both developed and emerging economies. Specifically, it analyzes a longitudinal dataset comprising 2,200 firms from 19 countries over a 14-year period (2009–2022). The analysis considers not only the aggregate ESG score, but also disaggregates the three core dimensions—Environmental (E), Social (S), and Governance (G)—to examine their individual contributions to firm performance across different institutional contexts.

The overarching research questions guiding this study are as follows:

1. Does ESG performance positively influence firm profitability and market valuation?
2. Do these effects vary systematically between developed and emerging markets?
3. Which of the ESG components (E, S, or G) are most strongly associated with firm performance in different economic contexts?
4. What are the practical implications for corporate decision-makers and policymakers seeking to optimize ESG strategies?

Emerging evidence suggests that ESG engagement can reduce firm-specific risk, enhance resource efficiency, and improve reputational capital—drivers that contribute to financial outperformance[4][5]. However, the relationship may not be uniform across markets. In emerging economies, institutional voids, regulatory inconsistencies, and resource constraints may limit the strategic effectiveness of ESG adoption (Singhania & Saini, 2023). Conversely, firms operating in more developed jurisdictions often benefit from mature financial systems, standardized reporting requirements, and active ESG-oriented investors that reward sustainable practices.

To account for the possibility of reverse causality between ESG and firm performance, the study implements 2SLS regression models using industry-level ESG averages as instrumental variables. This approach helps isolate the exogenous variation in ESG scores that is not driven by a firm's contemporaneous financial position[6].

The findings contribute to three distinct literatures. First, the study adds to the evolving discourse on the business case for sustainability by providing robust evidence across multiple countries and time periods. Second, it unpacks the relative importance of the three ESG pillars, highlighting the contextual relevance of environmental investments in emerging economies and the growing salience of governance mechanisms in developed markets. Third, from a methodological standpoint, it advances the empirical rigor of ESG studies by incorporating instrumental variable techniques to address endogeneity.

The remainder of the paper is structured as follows: Section 2 synthesizes the relevant literature and outlines the hypotheses; Section 3 details the data, variables, and methodology; Section 4 presents the empirical results; Section 5 discusses key implications; and Section 6 concludes with policy recommendations and suggestions for future research.

2. Literature Review, Theoretical Background, and Hypotheses Development

The link between ESG performance and firm financial outcomes is theoretically grounded in a range of established perspectives in corporate strategy and organizational theory. Most prominently, ***stakeholder theory*** (Freeman, 1984) provides a compelling rationale for why firms that actively manage relationships with diverse stakeholders—including employees, communities, regulators, and investors—are more likely to enjoy sustainable competitive advantages. ESG engagement, in this framework, is viewed as a mechanism to reduce reputational risk, enhance legitimacy, and improve long-term resource access.

The resource-based view[7] suggests that intangible assets like reputation and culture—often built through ESG practices—can help firms gain a competitive advantage. These ESG efforts may improve efficiency, reduce risk, and support long-term value creation. Institutional theory adds that the impact of ESG depends on the national context. In developed markets, strong legal systems and enforcement improve the effectiveness of ESG initiatives[8]. In contrast, emerging markets often lack strict oversight, which may reduce the benefits of ESG or lead to superficial compliance[9]. Agency theory focuses on how ESG-related governance—such as independent boards and better transparency—can reduce conflicts between managers and shareholders[10] (Jensen and Meckling, 1976). Taken together, these perspectives suggest that ESG can enhance firm performance, but its effects likely vary by country and firm-specific governance structures.

2.1. Empirical Evidence Linking ESG and Performance

A growing empirical literature supports the positive association between ESG performance and financial outcomes. Friede, Busch, and Bassen[2], in their meta-analysis of over 2,000 studies, conclude that a majority find either neutral or positive links between ESG and performance. Eccles, Ioannou, and Serafeim[1] show that firms with high sustainability ratings outperform their counterparts in both accounting and stock market metrics over the long term. Giese et al.[4] further demonstrate that ESG integration reduces downside risk, enhances valuation, and improves predictability of cash flows.

However, most of this literature is disproportionately focused on developed countries, raising questions about generalizability. Clark, Feiner, and Viehs[3] highlight that institutional maturity, stronger disclosure standards, and ESG-oriented investor bases may amplify ESG's value in developed economies. In contrast, ESG benefits may be muted or distorted in emerging markets due to weaker enforcement and a greater prevalence of "greenwashing"[9].

2.2. Toward a Contextualized Understanding of ESG Impact

Cross-country differences in ESG impact are further moderated by structural and cultural heterogeneity. Singh and Gaur[11] show that business group affiliation and governance frameworks in countries like China and India substantially shape firm behavior and outcomes. These institutional variations necessitate a more contextualized understanding of ESG's strategic implications.

Moreover, treating ESG as a monolithic construct can obscure important internal variation. Prior work has shown that the ***environmental, social, and governance*** pillars of ESG may yield differential performance effects[12]. Environmental practices—such as emission reduction or clean energy investments—often yield operational cost savings and regulatory goodwill. Social initiatives can enhance employee morale and brand equity, while robust governance fosters transparency and investor trust. Yet, these benefits are likely to be more pronounced in settings where institutions reward such behaviors.

2.3. Hypotheses

Against this backdrop, we propose the following testable hypotheses:

- **H1**: ESG performance has a positive impact on firm performance across both developed and emerging markets, though the magnitude of this impact varies by market type.
- **H2**: The positive association between ESG performance and firm outcomes is more pronounced in developed markets relative to emerging markets, reflecting institutional and regulatory differentials.
- **H3**: The impact of ESG on firm performance varies by component, with environmental, social, and governance practices exerting differential effects across market contexts.

Together, these hypotheses guide the empirical analysis to follow. By leveraging a multi-country panel dataset and employing robust estimation techniques to address endogeneity, this study seeks to generate policy-relevant and theoretically grounded insights into the evolving role of ESG in firm strategy and performance.

3. Methodology

3.1. Data Sources and Sample Composition

This study employs a comprehensive firm-level panel dataset comprising 2,200 publicly listed companies from 19 countries—12 classified as developed and 7 as emerging markets—over the period 2009 to 2022. The dataset is constructed using ESG performance data obtained from Bloomberg, which offers an established and widely used source for firm-level ESG disclosures and scores. Financial performance indicators and firm-specific attributes, including Return on Assets (ROA), Tobin's Q, Return on Equity (ROE), and Operating Cash Flow to Total Assets (OCF/TA), are sourced from Capital IQ and supplemented by World Bank indicators where applicable.

The sample includes firms with at least five years of ESG and financial data, excluding newer or short-lived entities. The final panel comprises roughly 16,000 firm-year observations. Countries are classified as developed or emerging based on World Bank and MSCI standards. Developed markets include the U.S., U.K., Germany, Japan, and others; emerging markets include India, China, Brazil, and select Southeast Asian nations, enabling cross-market comparison of ESG–performance linkages.

3.2. Variable Definitions

Dependent Variables

The analysis focuses on two primary indicators of firm performance:

- **Return on Assets (ROA):** Defined as net income divided by total assets, ROA captures accounting-based profitability and reflects operational efficiency.
- **Tobin's Q:** Computed as the ratio of market value of assets to their replacement cost, Tobin's Q serves as a market-based valuation metric reflecting investor perception of future performance potential.

As part of robustness checks, we also examine:

- **Return on Equity (ROE):** Net income divided by shareholders' equity.
- **Operating Cash Flow to Total Assets (OCF/TA):** Operating cash flows scaled by total assets, providing an alternative measure of financial health.

Independent Variables

- **ESG Performance Score:** The primary independent variable is the Bloomberg ESG score, scaled between 0 and 100. It reflects firm-level performance across environmental, social, and governance dimensions, as assessed by Bloomberg's proprietary methodology based on publicly disclosed data.
- **Environmental, Social, and Governance Sub-scores:** To assess the disaggregated impact of ESG, the three sub-dimensions are analyzed separately. These scores capture firm practices on climate strategy, emissions control, diversity and inclusion, stakeholder engagement, board structure, executive pay, audit practices, and similar metrics.

Control Variables

To mitigate omitted variable bias, the following firm-level controls are included:

- **Firm Size (lnTA):** Natural logarithm of total assets, capturing scale economies and information transparency.
- **Firm Age (lnAGE):** Natural logarithm of the number of years since incorporation, capturing organizational maturity.

- **Leverage (LEV):** Ratio of total debt to total assets, controlling for capital structure.
- **Industry Fixed Effects:** Included to account for sector-specific heterogeneity in ESG materiality and financial performance norms.
- **Year fixed effects**

Tables 1 and 2 below provide a brief description of the samples and the variables chosen.

Category	Total Firms	Developed Countries	Emerging Countries
Initial Sample	2,469	-	-
After Exclusion	2,200	-	-
Stratification by Country	2,200	1,722	478

Table 1. Panel A

Sl no	country	country status	no of firms
1	Australia	Developed	145
2	Canada	Developed	153
3	France	Developed	78
4	Germany	Developed	64
5	Ireland	Developed	22
6	Italy	Developed	31
7	Japan	Developed	338
8	Singapore	Developed	36
9	Spain	Developed	43
10	Sweden	Developed	42
11	United Kingdom	Developed	173
12	United States	Developed	571
13	Brazil	Emerging	70
14	Chile	Emerging	30
15	China	Emerging	195
16	Russia	Emerging	26
17	India	Emerging	51
18	Mexico	Emerging	35
19	South Korea	Emerging	73
	Total developed		1722
	Total Emerging		478

Table 1. Panel B

Sl no	Variable name	Variable description
1	Ln esg	ln(Esg score) (ESG score is collected from Bloomberg). ESG scores can indicate a firm's commitment to sustainable practices, potentially influencing overall firm performance positively.
3	Ln TA	ln(total asset size of the firm). Larger firms may have more resources for ESG initiatives, impacting both ESG performance and firm performance.
4	Ln age	ln(age of the firm as on the point of analyses). Older firms might have established practices and stability, which can affect ESG performance and firm resilience.
6	lev	Leverage ratio = total debt / total assets. Higher leverage indicates more debt, which can constrain resources available for ESG activities and impact firm stability.
7	rd_TA	R&D expenses / total assets. Higher R&D investment can lead to innovation and long-term growth, potentially enhancing firm performance and ESG outcomes.
8	ppe_ta	PPE / total assets. A higher proportion of physical assets might reflect a firm's capital intensity, influencing both ESG performance and overall firm value.
9	revgr	Revenue growth rate (previous year to current year). Revenue growth indicates a firm's market success and can be positively correlated with better ESG performance.
10	uslack	Unused resources in the firm as a percentage of total assets. High unused resources might indicate inefficiency, negatively impacting firm performance and available funds for ESG initiatives.
11	ROA	Return on Assets (ROA). ROA = Net Income / Total Assets. A measure of a firm's profitability relative to its total assets. Higher ROA indicates more efficient use of assets to generate earnings.
12	ROE	Return on Equity (ROE). ROE = Net Income / Shareholders' Equity. A measure of a firm's profitability relative to shareholders' equity. Higher ROE indicates more efficient use of equity to generate earnings.
13	Tobin's-Q	Tobin's Q. Tobin's Q = Market Value of Firm / Replacement Cost of Assets. A higher Tobin's Q indicates that the market values the firm's assets highly relative to their cost.
14	OCF/TA	OCF/TA= Operating Cash Flow / Total assets represents the ratio of a company's operating cash flow to its total assets, indicating how effectively a company generates cash from its operations relative to its asset base.

Table 2. Variable description

3.3. Econometric Framework

Baseline Regression Models

To empirically test the relationship between Environmental, Social, and Governance (ESG) performance and firm financial performance, we specify a series of baseline regression models. These models not only assess the aggregate effect of ESG but also disentangle the individual impacts of the Environmental (E), Social (S), and Governance (G) components. The analysis is conducted separately across three sample categories: developed countries, emerging countries, and the combined sample of all countries. The specified models are as follows:

$$\text{Firm-Performance} = \alpha + \beta 1 * \text{ESG} + \sum(\text{i=1 to n})\ \text{xi} + \gamma + \delta + \varepsilon + \varphi. \quad (1)$$

$$\text{Firm-Performance} = \alpha + \beta 1 * \text{E} + \sum(\text{i=1 to n})\ \text{xi} + \gamma + \delta + \varepsilon + \varphi. \quad (2)$$

$$\text{Firm-Performance} = \alpha + \beta 1 * \text{S} + \sum(\text{i=1 to n})\ \text{xi} + \gamma + \delta + \varepsilon + \varphi. \quad (3)$$

$$\text{Firm-Performance} = \alpha + \beta 1 * \text{G} + \sum(\text{i=1 to n})\ \text{xi} + \gamma + \delta + \varepsilon + \varphi. \quad (4)$$

where:

- Firm-Performance is measured using two dependent variables: ROA (Return on Assets) and Tobin's Q.
- φ represents the error term.
- xi includes all control variables.

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- γ, δ, and ε capture year, country, and industry fixed effects, respectively.

Given that this study employs panel data, we conduct the Hausman test to determine the appropriateness of fixed versus random effects. The models are estimated separately for all countries, developed countries, and emerging countries to capture potential heterogeneity in ESG-firm performance relationships across different market conditions.

Possibility of. Endogeneity and use of 2SLS model

The relationship between ESG performance and firm financial outcomes is potentially endogenous, meaning that while ESG initiatives can enhance firm performance, financially successful firms may also allocate more resources to ESG activities. To account for this bidirectional relationship, we conducted the Hausman-Wu endogeneity test, which confirmed substantial endogeneity across all models. To address this issue, we employed the Two-Stage Least Squares (2SLS) regression methodology. In the first stage, industry average ESG scores were used as an instrumental variable (IV) for firm-level ESG scores. This choice is based on the premise that firms within the same industry are likely to face similar regulatory and market pressures that drive ESG adoption. However, individual firm-level financial performance may vary due to firm-specific factors unrelated to broader industry-wide ESG trends. By utilizing industry-average ESG scores as an exogenous instrument[1], we aim to isolate variations in ESG performance that are independent of a firm's financial success, ensuring a more robust estimation of ESG's causal impact on firm performance. This approach enhances the reliability of our empirical findings by mitigating potential biases stemming from endogeneity.

Additional Estimations

To validate robustness, we perform sub-sample analyses by country type (developed vs. emerging), component-wise regressions for E, S, and G scores, and alternative model specifications using lagged ESG scores. Multicollinearity is checked using variance inflation factors (VIF), and diagnostics for instrument strength and over-identification are also conducted.

Robustness Tests

It is possible that our findings are contingent on the choice of performance measures. To ensure the robustness of our results, we perform additional tests using alternative performance metrics. To validate the findings therefore, robustness tests are conducted using alternative performance measures. These include: i) Return on Equity (ROE) ii) Operating Cash Flow to Total Assets (OCF/TA). These measures help ascertain the consistency or variability in the impact of ESG on financial performance across different metrics.

4. Results and findings

Tables 3 and 4 present preliminary analyses examining the ESG–performance relationship. The quartile analysis shows that firms in the top ESG quartile (mean ESG: 69.95) report stronger financial outcomes—ROA (0.10), Tobin's Q (1.638), ROE (0.173), and OCF/TA (0.093)—than those in the bottom quartile (mean ESG: 0.28), which report ROA of 0.08, Tobin's Q of 1.500, ROE of 0.074, and OCF/TA of 0.078. These trends suggest a positive ESG–performance linkage. The cross-correlation matrix supports this, with ESG significantly correlated with ROA (0.050**), Tobin's Q (0.029**), ROE (0.025**), and OCF/TA (0.054**). The social pillar displays strong associations, notably with ROA (0.095**), Tobin's Q (0.061**), and OCF/TA (0.045**). In contrast, the environmental score shows a modest negative correlation with Tobin's Q (–0.030**), suggesting possible short-term valuation trade-offs. Overall, higher ESG scores are broadly associated with improved firm financial outcomes, although component-level effects show variation.

Quartile	Quartile mean ESG score	Mean ROA	Mean Tobin's Q	Mean ROE	Mean OCF/TA
1	0.28	0.08	1.500	0.074	0.078
2	36.11	0.08	1.576	0.145	0.085
3	54.47	0.09	1.613	0.236	0.087
4	69.95	0.10	1.638	0.173	0.093

Table 3. Univariate analysis results

	roa	TobinQ	ROE	OCFTA	esg	env	social	govn	TA	age	rd_TA	ppe_ta	revgr	uslack	lev
roa	1	0.342**	0.006	0.224**	0.050**	0.011	0.095**	-0.01	-0.067**	0.019	0.060**	-0.091**	0.148**	0.009	-0.047**
TobinQ	0.342**	1	0.171**	0.255**	0.029**	-0.030**	0.061**	0.021**	-0.072**	-0.008	0.268**	-0.194**	0.029**	0.061**	-0.082**
ROE	0.006	0.171**	1	0.084**	0.025**	0.011	0.014	0.036**	0.001	-0.083**	0.052**	-0.019	-0.001	-0.002	-0.040**
OCFTA	0.224**	0.255**	0.084**	1	0.054**	0.040**	0.045**	0.069**	-0.006	-0.063**	0.004	0.228**	0.037**	0.042**	0.028**
esg	0.050**	0.029**	0.025**	0.054**	1	0.886**	0.919**	0.655**	0.267**	0.265**	0.064**	-0.024**	-0.032**	-0.071**	0.065**
env	0.011	-0.030**	0.011	0.040**	0.886**	1	0.765**	0.393**	0.275**	0.254**	0.028**	-0.001	-0.031**	-0.076**	0.046**
social	0.095**	0.061**	0.014	0.045**	0.919**	0.765**	1	0.431**	0.242**	0.276**	0.098**	-0.060**	-0.029**	-0.067**	0.064**
govn	-0.01	0.021**	0.036**	0.069**	0.655**	0.393**	0.431**	1	0.134**	0.109**	0.01	0.037**	-0.02	-0.046**	0.052**
TA	-0.067**	-0.072**	0.001	-0.006	0.267**	0.275**	0.242**	0.134**	1	0.048**	-0.014	-0.028**	-0.012	-0.045**	0.025**
age	0.019	-0.008	-0.083**	-0.063**	0.265**	0.254**	0.276**	0.109**	0.048**	1	-0.042**	-0.142**	-0.056**	-0.059**	0.014
rd_TA	0.060**	0.268**	0.052**	0.004	0.064**	0.028**	0.098**	0.01	-0.014	-0.042**	1	-0.207**	0.029**	0.054**	-0.105**
ppe_ta	-0.091**	-0.194**	-0.019	0.228**	-0.024**	-0.001	-0.060**	0.037**	-0.028**	-0.142**	-0.207**	1	0.009	0.018	0.085**
revgr	0.148**	0.029**	-0.001	0.037**	-0.032**	-0.031**	-0.029**	-0.02	-0.012	-0.056**	0.029**	0.009	1	0.009	-0.034**
uslack	0.009	0.061**	-0.002	0.042**	-0.071**	-0.076**	-0.067**	-0.046**	-0.045**	-0.059**	0.054**	0.018	0.009	1	-0.055**
lev	-0.047**	-0.082**	-0.040**	0.028**	0.065**	0.046**	0.064**	0.052**	0.025**	0.014	-0.105**	0.085**	-0.034**	-0.055**	1

Table 4. Cross correlation Matrix

Table 5 presents the 2SLS estimates for ESG performance and ROA across country classifications. ESG scores are positively associated with profitability across all samples: 0.010* for all countries, 0.010* for developed, and 0.005** for emerging markets. Disaggregated analyses reveal heterogeneity. The environmental component shows a larger effect in emerging economies (0.007) relative to developed markets (0.002***), potentially reflecting operational efficiency gains where environmental regulation is still evolving. The social dimension is significant across all groups—0.009* in developed and 0.003 in emerging—highlighting investor and stakeholder sensitivity to social engagement, particularly in advanced markets. Governance is positively associated with ROA in developed (0.002) and full samples (0.002) ** but is negative and insignificant in emerging markets (–0.0005), consistent with institutional enforcement gaps. Among controls, firm size and leverage are negatively associated with profitability, while revenue growth contributes positively. All regressions include year, industry, and country fixed effects. R-squared values range from 0.575 to 0.761.

Variables	Categories	(1) ESG on ROA	(2) E on ROA	(3) S on ROA	(4) G on ROA
Ln esg	All Countries	0.010***	0.004***	0.008***	0.002**
	Developed Countries	0.010***	0.002***	0.009***	0.002**
	Emerging Countries	0.005*	0.007***	0.003**	-0.0005
const	All Countries	0.149***	0.191***	0.156***	0.171***
	Developed Countries	0.115***	0.160***	0.120***	0.136***
	Emerging Countries	0.177***	0.185***	0.182***	0.196***
Ln TA	All Countries	-0.004***	-0.004***	-0.004***	-0.002***
	Developed Countries	-0.003***	-0.003***	-0.003***	-0.001***
	Emerging Countries	-0.007***	-0.008***	-0.007***	-0.007***
Ln age	All Countries	0.003***	0.002*	0.003***	0.004***
	Developed Countries	0.003***	0.002**	0.003***	0.004***
	Emerging Countries	0.003	0.001	0.003	0.003
rd_TA	All Countries	-0.017*	-0.018***	-0.018*	-0.015
	Developed Countries	-0.018**	-0.018**	-0.018**	-0.016***
	Emerging Countries	-0.063	-0.092	-0.061	-0.060
ppe_ta	All Countries	-0.020***	-0.021***	-0.020***	-0.020***
	Developed Countries	-0.018***	-0.019***	-0.018***	-0.018***
	Emerging Countries	-0.037***	-0.037***	-0.037***	-0.036***
revgr	All Countries	0.047***	0.045***	0.047***	0.047***
	Developed Countries	0.045***	0.043***	0.045***	0.045***
	Emerging Countries	0.051***	0.051***	0.051***	0.051***
uslack	All Countries	-0.009***	-0.000	-0.000***	-0.001***
	Developed Countries	-0.001***	-0.0006*	-0.001***	-0.001***
	Emerging Countries	0.0002	0.0005	0.0002	0.0002
lev	All Countries	-0.015***	-0.016***	-0.016***	-0.016***
	Developed Countries	-0.018***	-0.019***	-0.018***	-0.018***
	Emerging Countries	-0.010*	-0.008	-0.010*	-0.011*
Industry fixed effect		Yes	Yes	Yes	Yes
Country fixed effect		Yes	Yes	Yes	Yes
Year fixed effect		Yes	Yes	Yes	Yes
R Squared	All Countries	0.575	0.589	0.575	0.574
	Developed Countries	0.503	0.518	0.504	0.502
	Emerging Countries	0.757	0.761	0.757	0.756

Table 5. The table shows the 2SLS regression results of models (1) through (4) for all countries, developed countries and emerging countries using ROA as the measure of performance. Numbers in the cells indicate the coefficient values and ***, **, * indicate significance of the coefficient at 1%, 5%, 10% level of significance respectively.

Table 6 shows the 2SLS regression model results exploring the relationship between ESG performance and Tobin's Q, a key measure of market valuation. ESG demonstrates a positive and significant effect on Tobin's Q across all country categories, with a coefficient of 0.213* for the full sample, 0.201* for developed countries, and 0.169* for emerging countries.** These results suggest that ESG performance is valued more strongly in developed economies.

The Environmental component positively influences Tobin's Q, with a stronger effect in emerging countries (0.134*) than in developed markets (0.094*), mirroring the ROA findings. This could reflect growing investor preference for environmentally responsible firms in emerging markets. The Social component has a strong impact across all categories (0.125* for all countries, 0.101* for developed, and 0.103* for emerging), indicating firms with strong social policies are perceived as more valuable. Governance practices have a significant positive impact in all countries (0.091*) and developed markets (0.074***), with a slightly lower but still significant effect in emerging economies (0.066*).

Control variables show trends similar to the ROA models. R&D intensity positively affects Tobin's Q, suggesting investors value innovation, whereas firm size and leverage negatively impact market valuation. The models incorporate year, country, and industry fixed effects, with R-squared values ranging from 0.330 to 0.433 indicating moderate explanatory power.

Variables	Categories	ESG on Tobin Q	E on Tobin Q	S on Tobin Q	G on Tobin Q
Ln esg	All Countries	0.213***	0.115***	0.125***	0.091***
	Developed Countries	0.201***	0.094***	0.101***	0.074***
	Emerging Countries	0.169***	0.134***	0.103***	0.066***
const	All Countries	6.870***	7.430***	7.110***	7.100***
	Developed Countries	6.946***	7.474***	7.192***	7.171***
	Emerging Countries	1.385***	1.905***	1.597***	1.534***
rd_TA	All Countries	5.920***	6.290***	5.950***	6.200***
	Developed Countries	6.386***	7.131***	6.424***	6.593***
	Emerging Countries	2.851***	2.717***	3.018***	3.169***
ppe_ta	All Countries	0.073	0.085*	0.080*	0.092*
	Developed Countries	0.012	0.039	0.021	0.035
	Emerging Countries	0.393***	0.386***	0.402***	0.403***
revgr	All Countries	0.091***	0.102***	0.087***	0.090***
	Developed Countries	0.105**	0.121***	0.102**	0.104**
	Emerging Countries	0.062*	0.067*	0.059	0.058
uslack	All Countries	0.013**	0.009	0.012**	0.012**
	Developed Countries	0.024***	0.022***	0.024***	0.023***
	Emerging Countries	-0.025***	-0.029***	-0.026***	-0.026***
Lev	All Countries	-0.273***	-0.277***	-0.268***	-0.268***
	Developed Countries	-0.299***	-0.305***	-0.296***	-0.295***
	Emerging Countries	-0.189***	-0.194***	-0.174***	-0.169***
Ln_TA	All Countries	-0.121***	-0.115***	-0.109***	-0.093***
	Developed Countries	-0.107***	-0.099***	-0.091***	-0.079***
	Emerging Countries	-0.168***	-0.177***	-0.161***	-0.147***
Ln_age	All Countries	-0.037***	-0.039***	-0.033***	-0.024**
	Developed Countries	-0.049***	-0.044***	-0.043***	-0.037***
	Emerging Countries	0.021	-0.010	0.020	0.024
Industry fixed effect		Yes	Yes	Yes	Yes
Country fixed effect		Yes	Yes	Yes	Yes
Year fixed effect		Yes	Yes	Yes	Yes
R Squared	All Countries	0.335	0.336	0.332	0.330
	Developed Countries	0.333	0.337	0.331	0.330
	Emerging Countries	0.417	0.433	0.414	0.409

Table 6. The table shows the 2SLS regression results of models (1) through (4) for all countries, developed countries and emerging countries using Tobin's Q as the measure of performance. Numbers in the cells indicate the coefficient values and ***, **, * indicate significance of the coefficient at 1%, 5%, 10% level of significance respectively.

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Robustness Test Results for Alternative Performance Measures

To validate the robustness of our findings, we employed two alternative measures of firm performance: Return on Equity (ROE) and Operating Cash Flow scaled by Total Assets (OCF/TA). The results presented in Tables 7 and 8 corroborate the stability of our main findings and provide additional insights into the relationship between ESG performance and firm financial outcomes. Table 7 examines the relationship between ESG performance and ROE across different country groups. The results indicate a positive and significant association between ESG and ROE across all countries (0.104*), with a more pronounced effect in developed markets (0.151*) compared to emerging markets (0.066*)**. This suggests that firms in developed economies derive greater benefits from ESG practices in terms of equity returns, potentially due to enhanced investor confidence and more established ESG reporting standards. Analysing the individual ESG components, the Environmental factor demonstrates a significant positive impact on ROE across all countries (0.064)** and in developed economies (0.079**), but the effect is considerably weaker and statistically insignificant in emerging markets (0.012)**. This indicates that while environmental initiatives may enhance firm value in highly regulated markets, they might not yet yield substantial financial benefits in emerging economies, where environmental regulations and investor preferences for sustainability are still evolving. The Social component exhibits a strong positive effect on ROE in emerging markets (0.040*) and developed markets (0.042**),** reflecting the increasing importance of corporate social responsibility (CSR) and employee relations in driving firm performance. However, the social component is not significant in the full sample, suggesting that its impact may vary depending on regional economic and regulatory conditions. Governance practices exhibit a positive and significant effect on ROE in all countries (0.071*) and developed economies (0.084*), with a moderate but still significant impact in emerging markets (0.058*). This underscores the role of robust governance in enhancing firm performance, particularly in economies where regulatory oversight and corporate transparency are prioritised. Control variables reveal expected trends: Leverage and firm age generally have a negative impact on ROE, suggesting that higher debt levels and older firms may experience lower equity returns due to financial constraints and operational inefficiencies. The models incorporate year, country, and industry fixed effects, with R-squared values ranging from 0.042 to 0.257, indicating moderate explanatory power.

Variables	Categories	ESG on ROE	E on ROE	S on ROE	G on ROE
Ln esg	All Countries	0.104***	0.064**	0.029	0.071**
	Developed Countries	0.151**	0.079**	0.042	0.084*
	Emerging Countries	0.066***	0.012	0.040***	0.058***
const	All Countries	0.188	0.356*	0.369*	0.210
	Developed Countries	0.032	0.315	0.287	0.112
	Emerging Countries	0.881***	0.936***	0.964***	0.823***
rd_TA	All Countries	0.051	0.380	0.136	0.172
	Developed Countries	-0.385	0.115	-0.289	-0.241
	Emerging Countries	-0.437	-0.139	-0.370	-0.347
ppe_ta	All Countries	-0.185**	-0.090	-0.179**	-0.174**
	Developed Countries	-0.177*	-0.064	-0.165	-0.160
	Emerging Countries	-0.137***	-0.106**	-0.134***	-0.130***
revgr	All Countries	-0.071	-0.045	-0.073	-0.070
	Developed Countries	-0.095	-0.066	-0.098	-0.095
	Emerging Countries	0.008	0.022	0.007	0.008
uslack	All Countries	-0.008	-0.002	-0.009	-0.008
	Developed Countries	-0.008	-0.003	-0.009	-0.009
	Emerging Countries	0.0006	-0.001	0.0002	0.0005
Lev	All Countries	-0.400***	-0.314***	-0.396***	-0.400***
	Developed Countries	-0.578***	-0.452***	-0.574***	-0.577***
	Emerging Countries	0.308***	0.224**	0.314***	0.310***
Ln_TA	All Countries	0.035**	0.007	0.047***	0.046***
	Developed Countries	0.067***	0.025	0.085***	0.084***
	Emerging Countries	-0.082***	-0.064***	-0.079***	-0.076***
Ln_age	All Countries	-0.232***	-0.170***	-0.227***	-0.226***
	Developed Countries	-0.288***	-0.202***	-0.280***	-0.280***
	Emerging Countries	-0.076***	-0.070***	-0.077***	-0.073***
Industry fixed effect		Yes	Yes	Yes	Yes
Country fixed effect		Yes	Yes	Yes	Yes
Year fixed effect		Yes	Yes	Yes	Yes
R Squared	All Countries	0.042	0.042	0.041	0.042
	Developed Countries	0.056	0.052	0.055	0.055
	Emerging Countries	0.257	0.237	0.256	0.257

Table 7. Robustness Test -1: Using alternate performance measure ROE: The table shows the regression results of models (1) through (4) for all countries, developed countries and emerging countries using Tobin's Q as the measure of performance. Numbers in the cells indicate the coefficient values and ***, **, * indicate significance of the coefficient at 1%, 5%, 10% level of significance respectively.

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Table 8 extends the robustness check by assessing the relationship between ESG performance and OCF/TA, a measure of a firm's ability to generate cash flow from operations relative to total assets. The findings reveal a significant positive effect of ESG on OCF/TA across all country categories (0.008*), with a stronger effect in emerging markets (0.014*) compared to developed economies (0.001). This suggests that ESG-driven efficiency improvements may have more pronounced effects on cash flow generation in emerging markets, potentially due to higher financial constraints faced by firms in these economies. The Environmental component shows a positive influence on OCF/TA across all countries (0.003*), with a strong impact in emerging markets (0.009*), whereas the effect in developed markets is negligible (0.0005). This reinforces the idea that environmental investments may be more impactful in markets where regulatory transitions toward sustainability are still underway. The Social component exhibits a strong positive association with OCF/TA in emerging markets (0.008*)**, while it has a negative or negligible effect in developed countries (-0.0005). This suggests that firms in emerging economies may benefit more from social initiatives, possibly due to increasing demand for responsible business practices. Governance practices also positively impact OCF/TA across all country groups, highlighting the role of sound corporate governance in improving firms' financial resilience and cash flow efficiency.

Control variables indicate that R&D intensity positively influences OCF/TA, reinforcing the link between innovation and financial stability. Conversely, firm age generally has a negative impact, suggesting that older firms may face structural rigidities limiting their ability to generate operating cash flow efficiently. The models include year, country, and industry fixed effects, with R-squared values ranging from 0.202 to 0.344, indicating moderate explanatory power.

Variables	Categories	ESG on OCF/TA	E on OCF/TA	S on OCF/TA	G on OCF/TA
Ln esg	All Countries	0.008***	0.003***	0.004***	0.005***
	Developed Countries	0.001	0.0005	-0.0005	0.001
	Emerging Countries	0.014***	0.009***	0.008***	0.007***
const	All Countries	0.013	0.045***	0.022**	0.016
	Developed Countries	0.006	0.025**	0.011	0.005
	Emerging Countries	0.104***	0.150***	0.122***	0.110***
rd_TA	All Countries	0.084*	0.211***	0.085*	0.094*
	Developed Countries	0.119	0.266***	0.122**	0.121**
	Emerging Countries	-0.140	-0.205**	-0.127	-0.116
ppe_ta	All Countries	0.075***	0.075***	0.076***	0.076***
	Developed Countries	0.074**	0.073***	0.075***	0.075***
	Emerging Countries	0.074***	0.073***	0.075***	0.075***
revgr	All Countries	0.009***	0.010***	0.009***	0.009***
	Developed Countries	0.011***	0.011***	0.011***	0.011***
	Emerging Countries	0.005	0.008	0.005	0.005
uslack	All Countries	0.001*	0.003***	0.001*	0.001*
	Developed Countries	0.0008***	0.003***	0.0007	0.0008
	Emerging Countries	0.003***	0.003***	0.003***	0.003***
Lev	All Countries	-0.000	-0.001	6.89e-05	-9.37
	Developed Countries	0.001	0.001	0.002	0.001
	Emerging Countries	0.001	-0.005	0.003	0.003
Ln_TA	All Countries	0.002***	0.000	0.002***	0.003***
	Developed Countries	0.005***	0.002***	0.005***	0.005***
	Emerging Countries	-0.005***	-0.005***	-0.005***	-0.004***
Ln_age	All Countries	-0.007***	-0.008***	-0.007***	-0.007***
	Developed Countries	-0.006	-0.006***	-0.006***	-0.006***
	Emerging Countries	-0.011***	-0.013***	-0.011***	-0.010***
Industry fixed effect		Yes	Yes	Yes	Yes
Country fixed effect		Yes	Yes	Yes	Yes
Year fixed effect		Yes	Yes	Yes	Yes
R Squared	All Countries	0.220	0.231	0.220	0.220
	Developed Countries	0.202	0.218	0.202	0.202
	Emerging Countries	0.344	0.338	0.342	0.340

Table 8. Robustness Test -2: Using alternate performance measure OCF/TA: The table shows the regression results of models (1) through (4) for all countries, developed countries and emerging countries using Tobin's Q as the measure of performance. Numbers in the cells indicate the coefficient values and ***, **, * indicate significance of the coefficient at 1%, 5%, 10% level of significance respectively.

5. Discussion of results

Results from our main analyses (Tables 5 and 6) and robustness checks (Tables 7 and 8) consistently show that stronger ESG performance is positively associated with firm performance. These findings remain stable after controlling for year, industry, and country fixed effects, reinforcing the interpretation that ESG is not merely a compliance tool but a strategic contributor to financial performance.

Firms with higher ESG scores tend to exhibit operational advantages—such as improved efficiency, stakeholder trust, and better risk management—which translate into enhanced profitability and market perception. This relationship is especially clear in developed markets, where ESG practices are aligned with well-established regulatory standards and where institutional investors increasingly favor firms with strong sustainability credentials. Among ESG components, Social and Governance scores demonstrate particularly strong links to profitability, suggesting that corporate responsibility and transparent oversight materially improve firm performance in these settings.

In emerging markets, the association between ESG and financial performance is more varied, though still generally positive. Notably, the Environmental dimension appears to have a stronger impact here. This likely reflects the tangible benefits firms in these markets can derive from improved resource efficiency and compliance with evolving environmental regulations. In regions facing acute environmental challenges, firms that proactively engage in sustainability practices may benefit from both operational gains and reputational enhancement.

On the other hand, the Social component yields mixed results in emerging markets. Unlike in developed economies—where social responsibility can attract investor and customer loyalty—cultural heterogeneity and inconsistent enforcement may reduce the effectiveness of such initiatives. This highlights the importance of designing ESG strategies that are locally embedded and responsive to contextual factors.

Governance, while crucial to firm decision-making, shows relatively weak and sometimes insignificant effects on performance in emerging markets. The likely explanation lies in weaker institutional enforcement, lower transparency standards, and less investor activism. Even when governance reforms are undertaken, they may lack credibility or visibility. Strengthening legal institutions and regulatory oversight could help elevate the role of governance in improving firm outcomes.

Taken together, these results illustrate that the financial benefits of ESG engagement are not uniform across geographies. Developed markets offer stronger institutional support, consistent disclosure frameworks, and stakeholder expectations that align well with ESG practices, thereby amplifying their positive impact on firm performance. In contrast, emerging markets—while showing promise, particularly in environmental performance—continue to face structural and institutional constraints that limit the effectiveness of ESG engagement.

In summary, the findings suggest that ESG performance does matter for firm performance globally, but the extent and nature of its impact vary across economic and regulatory contexts. Firms should craft ESG strategies that reflect these realities, and policymakers—particularly in emerging economies—must work to strengthen the institutional foundations that can enable ESG practices to generate consistent financial returns.

6. Summary and conclusion

This study investigates how ESG performance relates to firm performance using a panel of 2,200 firms across 19 countries from 2009 to 2022. By distinguishing between developed and emerging markets, the analysis evaluates whether ESG practices translate into better financial outcomes—measured by ROA and Tobin's Q—across institutional contexts.

Our results point to a consistent positive association between ESG performance and firm profitability. These relationships remain robust across multiple specifications, including univariate, multivariate, and instrumental variable (2SLS) regressions that account for potential endogeneity. Alternative performance metrics such as ROE and OCF/TA support the main findings.

Importantly, we find that the strength and direction of ESG's impact vary by region. Developed markets show more consistent and significant financial benefits from ESG engagement, likely reflecting stronger regulatory institutions and investor expectations. In emerging markets, the Environmental component tends to have a more pronounced effect, while Social and Governance dimensions exhibit weaker or insignificant results.

Overall, the findings suggest that ESG initiatives can enhance firm performance, but their effectiveness depends on market context. The results highlight the importance of tailoring ESG strategies to local institutional conditions and of strengthening governance frameworks in emerging economies to realize the full financial potential of sustainable business practices.

These findings carry significant implications for corporate managers and policymakers. For corporate managers, integrating ESG practices into core business strategies can enhance operational efficiencies, reduce costs, and improve stakeholder relationships, ultimately leading to increased profitability. Policymakers, especially in emerging markets, are encouraged to develop supportive regulatory frameworks that can enhance the effectiveness of ESG initiatives. Such policies can help firms better leverage ESG investments for both financial and societal gains.

Despite our best efforts, some limitations remain. There can be several variables which could either moderate or mediate the relation between ESG and firm performance. Cultural traits of the country in which the firms operate, institutional holdings in firms, and Economic Policy Uncertainty (EPU) in the

country are some examples. The paucity of data on these variables at this moment prevented us from exploring these issues further. These could be taken up as future research inquiries.

In conclusion, this study underscores the universal relevance of ESG practices in enhancing firm performance, while also highlighting the importance of contextual factors in shaping these impacts. The insights gained can inform the development of more effective ESG strategies and policies, promoting sustainable business practices globally.

Notes

JEL Classification: G30, M14, Q56

Footnotes

[1] We also carry out a "weak instrument' test for this IV to be used against ESG and the results indicate that the IV is robust

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