





“ESG performance and corporate financial performance in China: Moderating effects of analyst and media attention”

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ESG PERFORMANCE AND CORPORATE FINANCIAL PERFORMANCE IN CHINA: MODERATING EFFECTS OF ANALYST AND MEDIA ATTENTION

Abstract

Firms worldwide are embracing ESG principles and strengthening their ESG performance to foster sustainable development. This study uses five years of data from China to examine the relationship between ESG performance and corporate financial performance (CFP), measured by ROE, and tests the moderating effects of analyst and media attention using both ordinary least squares (OLS) and the fixed-effects model (HDFE). Regression analyses demonstrate that: (1) the ESG performance has a significantly positive effect on ROE (coefficient = 0.026, $p < 0.01$), and after lagged by one and two periods, the effect is sustained (coefficient = 0.019/0.018, $p < 0.01$). (2) Analyst attention negatively modulates the relationship between ESG and ROE (coefficient = -0.011, $p < 0.01$), and the relationships for CSR (coefficient = -0.002, $p < 0.01$) and CG (coefficient = -0.011/-0.012, $p < 0.01$), but can mitigate the negative effect of environmental protection (ENV) on ROE (coefficient = 0.002, $p < 0.01$). (3) Media attention shows no consistent moderating effect on ESG-ROE relationship (coefficient = -0.001, $p > 0.10$; coefficient = -0.001, $p < 0.05$), but after classifying by sentiment, positive and neutral media coverage significantly weakens the positive impact of ESG on ROE (coefficient = -0.004/-0.005, $p < 0.01$; coefficient = -0.003/-0.004, $p < 0.05/0.01$), while negative coverage strengthens it (coefficient = 0.003/0.002, $p < 0.05/0.10$). Therefore, to meet external regulatory or public expectations, firms should strive to disclose more detailed and reliable ESG information, while investors and other stakeholders should critically evaluate the information presented.

Keywords

ESG performance, analyst attention, media attention,
information asymmetry

JEL Classification

M14, G32, G14

INTRODUCTION

The Environmental, Social, and Governance (ESG), a concept which the United Nations Global Compact (World Bank Group, 2017) first proposed, aims to better integrate environmental, social, and governance issues in analysis, asset management, and securities brokerage, in the same vein as the corporate social responsibility (CSR) advocated in the past. Up to now, ESG has been widely recognized by the international community and thought of as a "wind vane" of sustainable development of enterprises. International ESG evaluation systems and standards are gradually converging, such as International Financial Reporting Standards (IFRS), Global Reporting Initiative (GRI), and other international standards, which are widely used in various countries.

ESG was widely recognized in China when Chinese A-shares were officially included in the MSCI Emerging Market Index and the MSCI World Index in 2018, driven by the "dual carbon" goal. ESG practices ushered in explosive growth in 2021 and will continue through 2024.

In April 2024, the Shanghai, Shenzhen, and Beijing stock exchanges officially issued the “Sustainability Reporting Guidelines”, in which some listed companies are compulsorily required to disclose their Sustainability Reports in accordance with the guidelines, marking the dawn of the era of strong disclosure. In this policy context, more listed companies are creating separate board committees and compiling and publishing ESG-related reports in a more consistent and standardized format independently. But it is more about a given responsibility and common practice from the shareholder perspective, and only if better ESG performance can achieve a higher level of financial performance and be more beneficial for shareholders ultimately, companies will adopt the ESG concept as the driving force of development and contribute to the sustainable development of society at the same time. According to the questionnaire survey results of A-share listed companies by the China Association of Public Companies, 81.02% of listed companies practice the concept of sustainable development to create long-term value and enhance enterprise development opportunities (China Association for Public Companies, 2024).

Overall, the impact of ESG information disclosure and ESG performance on corporate value has emerged as a rapidly expanding and increasingly significant area of interest, drawing substantial attention from both academic researchers and capital market participants in China. Consequently, exploring the relationship – and the internal and external factors that influence it – has gradually become a focal point of research in recent years.

1. LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

This study provides a scientific basis for its hypotheses by systematically reviewing the existing academic literature on the relationship between ESG performance and Corporate Financial Performance (CFP). Using Stakeholder Theory and Resource Dependence Theory as the primary theoretical foundations for this review, we analyze how ESG practices build stakeholder trust and translate into a firm’s competitive advantage.

The review plan is structured as follows. First, we track the shift in dominant academic perspectives on the impact of ESG performance on financial outcomes (from the meta-analysis by Friede et al. (2015) to the most recent studies) to establish a comprehensive scientific landscape. Second, we examine the roles of analysts and media coverage as external information intermediaries that mitigate information asymmetry, identifying their moderating effects, which have been relatively overlooked in prior research. The results derived from this logical progression form the foundation for the analytical framework and the hypotheses of this study, specifically focusing on Chinese listed companies.

A systematic review of the existing academic literature on ESG research shows that while some studies, such as Duque-Grisales and Aguilera-Caracuel (2021), showed a significant negative correlation between ESG scores and their financial performance, and Junius et al. (2020) found that ESG scores have no significant effect on firm performance and market value, a review of the literature, starting with Friede et al. (2015), Whelan (2021), and Halid et al. (2023), showed that the result of positive impact has become increasingly evident and stabilized. Most studies proved that ESG performance is positively related to corporate financial performance and long-term value, especially over recent years, with the widespread recognition of sustainable development and the rise of ESG investment as an undeniable force in financial markets. It is mainly based on stakeholder theory and resource dependence theory. Companies improve their ESG practices to satisfy stakeholder expectations and information demand, such as employees, customers, investors, and governments, safeguarding their interests and increasing their trust, which ultimately helps exploit sources of competitive advantage and enhance corporate performance and profitability. For example, Alsayegh et al. (2020) demonstrated that providing transparent and high-quality ESG information can enhance stakeholders’ confidence, thereby improving corporate performance. Sassen et al. (2016) found that superior

ESG performance, especially in the social dimension, can mitigate firm risk and thereby strengthen corporate value. Abdi et al. (2022) found that engagement in social and environmental initiatives drives higher financial efficiency, rewarding committed firms with superior performance. As ESG comprises three dimensions, environmental, social, and governance, existing research not only examines its overall relationship with financial performance but also analyzes the distinct impacts and underlying mechanisms of each component. The majority of studies demonstrated that strong CSR (Maqbool & Zameer, 2018) and CG (Velte, 2017) performance have contributed to the growth of financial performance, and it is precisely this positive transmission mechanism that underpins ESG's impact on firms. When it comes to EVN factor, the impact cannot be generalized; Saleh et al. (2011) documented a positive relationship, whereas Alareeni and Hamdan (2020) found a negative one, explained by the higher financial costs involved; Lahouel et al. (2020) showed an inverted-U relationship and an inverted-V relationship when Tobin's Q and ROA are respectively used. The conclusions are the same in China. Based on the data for Chinese listed companies, a growing body of research, Tao (2023), Chen and Xie (2022), Li et al. (2021), and Xie et al. (2019), demonstrates that ESG disclosures have a positive and significant impact on corporate financial performance.

To understand how ESG performance enhances financial outcomes, scholars have increasingly incorporated stakeholder-related variables into their analytical frameworks to assess their crucial role in driving these outcomes, as stakeholders place greater emphasis on non-financial ESG information and their preferences regarding ESG have, in turn, emerged as key drivers of firms' adoption and enhancement of sustainable practices. Especially analysts and media, through their role as external information intermediaries, enhance corporate ESG transparency and mitigate information asymmetry, thereby optimizing the market mechanism for converting ESG performance into financial outcomes. This effect is more pronounced in China's capital markets. With a short history and dominated by individual investors who have limited information acquisition and in-depth analysis capabilities, invest-

ment decisions here often depend heavily on public news, social media, and "stock commentary."

Specifically, financial analysts, acting as "information bridges", usually possess solid financial expertise, can track business operations over the long term, and make relatively accurate profit forecasts. And due to the accuracy of the forecasts improved by incorporating ESG information as a supplement to financial data into their investment recommendations, analysts' assessments of a company's ESG performance become key reference information for investors and other decision-makers in the capital market (Adomako & Tran, 2022). In turn, it has become an important factor influencing corporate behavior. A review from Berrada and Meknassi (2024) highlighted that analysts play a critical role in advancing corporate sustainability by promoting ESG adoption, enhancing transparency, and advocating for responsible investment. Mouselli and Hussainey (2014) found that the impact of analysts' tracking on the company is similar to that of corporate governance (CG), enhancing financial performance. Although such studies are limited, for example, the work of Tsang et al. (2024) indicated that voluntary CSR reporting increases firm value, and analysts strengthen the positive relationship. In China, Zhang and Wu (2023) suggested that analyst coverage improves corporate ESG performance, especially the environmental (E) and social (S) dimensions. But there is virtually no research on the role of analysts in shaping the relationship between ESG and CFP.

Media coverage, as a key channel for information dissemination, influences stakeholder decisions through its sustained focus on corporate behavior, including ESG performance, thereby becoming an important external force shaping companies' actions and strategies (Gurun & Butler, 2012). Under pressure of satisfying the wishes of the public and preventing penalties from administrative agencies, corporates will improve ESG performance to avoid the adverse effects of negative reporting (Baloria & Heese, 2018). Therefore, the higher the media attention and the stronger the supervisory environment, the greater the impact on a company's ESG performance. Chinese scholars have explored the multifaceted role of media, producing a nuanced

and substantial body of research. Cui et al. (2023) found that both the frequency of media attention and the diversity of reporting types can enhance the quality of ESG information disclosure, even in the negative media reports. ESG-related coverage, whether positive or neutral, serves as a positive signal, helps maintain a strong corporate image and reputation, thereby attracting greater investor interest (Li & Feng, 2022) and consumer support (Hu et al., 2024). There are also some researchers, such as Jiang (2024), who proved that information transparency plays a partial mediating role, and Zhang and You (2024) found that media attention plays a positive moderating role in the relationship between ESG and CFP.

In summary, existing literature has explored the economic consequences and impact mechanisms of ESG and its sub-dimensions from multiple perspectives, both globally and in China. However, scholarly attention remains limited regarding the specific roles of analyst and media attention in the ESG-CFP relationship. In China, where green innovation and sustainable development are prioritized, such research holds particular significance to provide guidance for firms, investors, and other stakeholders on how to utilize such information and to offer references for ESG rating agencies and regulatory bodies in formulating policies. Based on this, this study uses data from Chinese listed companies, aiming to systematically examine the impact of ESG performance on corporate financial performance and further analyze the potential moderating effects of analyst and media attention on this relationship. In addition, this study specifically introduces media sentiment, categorized as positive, neutral, or negative, as a refined indicator to explore its differentiated moderating effects on the relationship. To achieve objectives, the following hypotheses are put forward:

H1: ESG performance has a positive impact on Corporate Financial Performance (CFP).

H2: Analyst attention strengthens the positive relationship between ESG and CFP.

H3: Media attention strengthens the positive relationship between ESG and CFP.

2. METHODS

The study sample comprises annual data from 2018 to 2023 for A-share firms listed on China's Shanghai and Shenzhen stock markets. A total of 21,921 valid observations were collected after excluding the financial and banking sectors and screening out missing or incomplete data. All data are sourced from WIND and CSMAR databases, and the data were processed by Stata.18.0 software.

All variables and definitions were presented in Table 1. Specifically, the study uses ROE as a corporate financial performance indicator, which is mostly regarded as a financial performance metric. The indicator used to assess corporate ESG performance is derived from the Chinese SNSI ESG ratings system data, which encompasses a vast number of targets and spans an extended period, and also includes independent ratings for the three dimensions of environment, society, and corporate governance (Sino-Securities Index, 2022).

The regression models for hypothesis testing are as follows.

$$ROE_{i,t} = \alpha_0 + \alpha_1 ESG_{i,t} + \Sigma controls + \varepsilon_{i,t}. \quad (1)$$

$$ROE_{i,t} = \beta_0 + \beta_1 ESG_{i,t} + \beta_2 AN_{i,t} + \beta_3 AN_{i,t} \cdot ESG_{i,t} + \Sigma controls + Year + Industry + \varepsilon_{i,t}. \quad (2)$$

$$ROE_{i,t} = \gamma_0 + \gamma_1 ESG_{i,t} + \gamma_2 Media_{i,t} + \gamma_3 Media_{i,t} \cdot ESG_{i,t} + \Sigma controls + Year + Industry + \varepsilon_{i,t}. \quad (3)$$

3. RESULTS

Table 2 provides the descriptive statistics of the variables used in the analysis. It is worth noting that environmental scores are lower than social and governance scores, suggesting that environmental protection remains a critical issue requiring urgent attention. For the moderating variables, the mean (median) of analysts' attention (AN) is 1.160 (0.693), varying from 0.000 to 3.807, illustrating that it is generally low, and some corporates have no attention at all. The mean (median)

Table 1. Description of the study variables

Variable	Definition	Description	
ROE	Return on Equity	ROE equals net income divided by equity of firm (i), in period (t).	
ESG	Firm disclosure of environmental, social, and governance	The SNSI ESG ratings are composed of three pillars: environmental (E), social (S), and governance (G) of firm (i) in period (t).	
EVN	Environment disclosure	The SNSI EVN index measures disclosure of climate change, resource utilization, environmental pollution, environmental friendliness, and environmental management of firm (i) in period (t).	
CSR	Social responsibility disclosure	The SNSI CSR index measures disclosure of five themes of human capital, product responsibility, suppliers, social contribution, and data security and privacy of firm (i) in the period (t).	
CG	Governance disclosure	The SNSI CG index measures the disclosure of six themes of shareholder interests, governance structure, quality of information disclosure, governance risk, external punishment, and business ethics of firm (i) in period (t).	
AN	Analyst attention	The natural logarithm of one plus the number of analysts following the firm.	
Media	Media attention	The natural logarithm of one plus the number of occurrences in the financial news content of newspapers and magazines.	
Controls	Size	Firm size	Measured by the total assets.
	Growth	Firm growth	Measured by changes in annual operating revenue.
	Inst	Institutional investor shareholding	Measured by the proportion of institutional investors' shareholding to the total share capital.
	SOE	State-owned enterprise	Measured by whether it is a state-owned enterprise.
	Cash-flow	Cash-flow ratio	Measured by dividing the net cash flow generated from operating activities by total assets.
Year	Annual virtual variable	Time-fixed effect variable	
Industry	Industry virtual variables	Industry fixed effect variables	

of media attention (Media) is 3.583 (2.890), varying from 0.693 to 10.125, indicating that all firms receive at least some coverage, while only a few attract exceptionally high levels of media attention.

Table 3 presents the correlation results, showing significant positive associations between overall ESG performance, its individual pillars, analyst attention, media coverage, and ROE. Moreover, analyst and media attention are both significantly positively correlated with ESG performance.

Table 4 shows the regression results of model (1). As can be observed from the table, in both cases of OLS and HD-FE, the regression coefficients of ESG on ROE are significantly positive regardless of whether the effects from control variables are considered or not, showing that ESG can effectively contribute to the enhancement of corporate financial performance measured by ROE, which verifies Hypothesis H1.

It is widely acknowledged that ESG represents a long-term strategic initiative aimed at achieving

Table 2. Descriptive statistical results of variables

Var Name	Obs	Mean	SD	Min	Median	Max
ROE	21921	0.044	0.167	-0.988	0.067	0.373
ESG	21921	4.206	1.001	1.000	4.000	6.000
EVN	21921	2.123	1.198	1.000	2.000	6.000
CSR	21921	4.844	1.455	1.000	5.000	8.000
CG	21921	5.177	1.293	1.000	5.000	7.000
AN	21921	1.160	1.202	0.000	0.693	3.807
Media	21921	3.583	2.308	0.693	2.890	10.125
Size	21921	22.343	1.312	19.917	22.126	26.408
Growth	21921	0.292	0.788	-0.704	0.103	5.273
Inst	21921	0.423	0.249	0.003	0.426	0.915
SOE	21921	0.301	0.459	0.000	0.000	1.000
Cashflow	21921	0.051	0.068	-0.155	0.050	0.248

Table 3. Correlation analysis

	ROE	ESG	EVN	CSR	CG	AN	Media	Size	Growth	Inst	SOE	Cashflow
ROE	1											
ESG	0.198***	1										
EVN	0.036***	0.511***	1									
CSR	0.096***	0.606***	0.308***	1								
CG	0.250***	0.672***	0.117***	0.128***	1							
AN	0.295***	0.286***	0.180***	0.213***	0.225***	1						
Media	0.092***	0.087***	0.053***	0.093***	0.051***	0.183***	1					
Size	0.097***	0.194***	0.295***	0.186***	0.025***	0.430***	0.258***	1				
Growth	0.005	0.004	-0.028***	-0.017**	-0.015**	-0.075***	0.003	-0.022***	1			
Inst	0.138***	0.109***	0.118***	0.026***	0.098***	0.253***	0.171***	0.448***	0.001	1		
SOE	-0.007	0.043***	0.090***	-0.017**	0.025***	-0.043***	0.088***	0.386***	0.075***	0.411***	1	
Cashflow	0.335***	0.111***	0.068***	0.042***	0.132***	0.260***	0.039***	0.103***	-0.113***	0.120***	-0.013*	1

Note: * t-statistics in parentheses; *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table 4. Regression results of the relationship between ESG and ROE

Variables	OLS	HD-FE	OLS	HD-FE
	ROE	ROE	ROE	ROE
ESG	0.035*** (31.44)	0.034*** (30.64)	0.026*** (24.21)	0.026*** (24.43)
Size			0.003*** (2.69)	0.002* (1.93)
Growth			0.013*** (9.17)	0.009*** (6.53)
Inst			0.069*** (13.98)	0.068*** (13.92)
SOE			-0.021*** (-7.76)	-0.022*** (-8.60)
Cashflow			0.750*** (46.49)	0.764*** (48.35)
Constant	-0.306*** (-3.79)	-0.099*** (-20.67)	-0.367*** (-4.67)	-0.170*** (-8.63)
Year	YES	YES	YES	YES
Industry	YES		YES	
Observations	21,921	21,921	21,921	21,921
R-squared	0.075	0.044	0.175	0.154

Note: * t-statistics in parentheses; *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

corporate sustainability. To more accurately capture the long-term impact of ESG on ROE and enhancing the credibility of our findings, this study introduces lagged ESG variables. As shown in Table 5, when ESG performance is lagged by one period (L.ESG) and two periods (L2.ESG), the estimated coefficient is still significantly positive at 0.019 and 0.018 in both the HD-FE and OLS models, confirming the sustained influence of ESG practices on Corporate Financial Performance.

Then, further regression analyses were performed to examine the effect of ESG subcomponents (EVN, CSR, CG) on ROE, and the results are in

Table 6. First, the non-significant result of EVN indicates that the relationship between environmental performance and financial performance is ambiguous; it may be attributed to the dual influence of a company's environmental protection initiatives. On the one hand, enterprises' efforts to adhere to environmental protection principles can improve their image and reputation, gain high social recognition and favor, and thus get higher investment and sales to improve financial performance. On the other hand, when firms endeavor to be environmentally responsible, they may bear higher financial costs followed by higher prices, which leads to lower financial performance.

Table 5. Regression results with lag effects of ESG on ROE

Variables	OLS	HD-FE	OLS	HD-FE
	ROE	ROE	ROE	ROE
L.ESG	0.019*** (15.87)	0.019*** (16.28)		
L2.ESG			0.018*** (13.43)	0.018*** (13.71)
Size	0.006*** (5.47)	0.005*** (4.49)	0.009*** (6.85)	0.007*** (5.23)
Growth	0.012*** (7.37)	0.008*** (4.91)	0.010*** (5.08)	0.005** (2.51)
Inst	0.071*** (12.21)	0.069*** (11.97)	0.079*** (11.33)	0.076*** (10.95)
SOE	-0.021*** (-6.92)	-0.022*** (-7.73)	-0.025*** (-7.15)	-0.027*** (-7.95)
Cashflow	0.793*** (42.76)	0.809*** (44.45)	0.799*** (36.80)	0.831*** (38.92)
Constant	-0.453*** (-5.04)	-0.213*** (-9.42)	-0.291*** (-3.58)	-0.253*** (-9.54)
Year	YES	YES	YES	YES
Industry	YES		YES	
Observations	16,614	16,614	12,485	12,485
R-squared	0.183	0.156	0.197	0.163

Note: * t-statistics in parentheses; *** p < 0.01, ** p < 0.05, * p < 0.1.

Second, both CSR coefficients are positive and significant at the 1% level, indicating that the disclosure of social information has a positive impact on ROE. It may mainly be attributed to the positive effects of fulfilling stakeholder needs through the implementation of effective social responsibility practices. Enhancing brand image to win the trust and favor of consumers. Providing a good working environment, better employee welfare, and career development opportunities contribute to higher employee satisfaction and loyalty, increasing motivation and creativity. Also, through mitigating potential risks and costs to strengthen investor confidence. Third, both CG coefficients are also positive and significant at 1%, indicating that the disclosure of corporate governance information also has a positive impact on ROE. This may result from the fact that information disclosure contributes to enhancing the corporate governance structure. One is optimizing the decision-making process and the internal control system to spur managers make the best use of the company's limited resources to ensure a maximized profit. Two is making the management system legal and compliant, such as improving the effectiveness of the board of directors, to avoid disordered business behavior. Finally, serving to reduce information asymmetry to attract long-term investors' capi-

tal inflow into the enterprise, which subsequently enhances an enterprise's net assets and financial performance.

After verifying the positive impact of ESG on ROE, this study further explores the analyst attention moderating effect on the relationship. As shown in Table 7, all coefficients of ESG and AN are statistically significant at the 1% level, indicating that both ESG performance and analyst attention have a positive and significant direct effect on ROE. However, the interaction term ESG*AN has a significantly negative coefficient of -0.011, indicating a negative moderating effect, unexpectedly opposite to the hypothesis (H2). Further analysis and explanation are needed.

Table 8 shows the regression results of the moderating effect of analysts' attention on the relationship between ESG subcomponents and ROE. Unlike ESG's positive impact on ROE and analysts' weakening effect on this relationship, with the coefficients of EVN (-) and the interaction term EVN*AN (+) being statistically significant across all models, the results indicate that environmental performance has a negative impact on ROE, while analyst attention exerts a positive moderating effect on this relationship. It means that, although

Table 6. Regression results of the relationship between ESG, ENV, CSR, CG, and ROE

Variables	OLS	HD-FE	OLS	HD-FE	OLS	HD-FE
	ROE	ROE	ROE	ROE	ROE	ROE
ENV	-0.001 (-1.14)	0.000 (0.20)				
CSR			0.007*** (9.67)	0.009*** (11.67)		
CG					0.027*** (32.88)	0.027*** (33.28)
Size	0.007*** (7.23)	0.005*** (5.66)	0.005*** (4.98)	0.003*** (3.41)	0.007*** (7.30)	0.006*** (7.02)
Growth	0.013*** (9.02)	0.010*** (7.09)	0.013*** (9.19)	0.010*** (7.12)	0.013*** (9.18)	0.009*** (7.10)
Inst	0.075*** (14.84)	0.072*** (14.42)	0.076*** (15.07)	0.074*** (14.93)	0.061*** (12.47)	0.058*** (11.95)
SOE	-0.022*** (-7.92)	-0.025*** (-9.37)	-0.020*** (-7.44)	-0.022*** (-8.46)	-0.022*** (-8.32)	-0.025*** (-9.74)
Cashflow	0.793*** (48.77)	0.800*** (50.14)	0.784*** (48.35)	0.796*** (50.05)	0.727*** (45.51)	0.732*** (46.65)
Constant	-0.371*** (-4.66)	-0.146*** (-7.16)	-0.345*** (-4.34)	-0.139*** (-6.96)	-0.503*** (-6.47)	-0.296*** (-14.81)
Year	YES	YES	YES	YES	YES	YES
Industry	YES		YES		YES	
Observations	21,921	21,921	21,921	21,921	21,921	21,921
R-squared	0.153	0.131	0.156	0.136	0.193	0.172

Note: * t-statistics in parentheses; *** p < 0.01, ** p < 0.05, * p < 0.1.

Table 7. Analysts' moderating effect regression results

Variables	OLS	HD-FE
	ROE	ROE
ESG	0.032*** (22.65)	0.032*** (22.62)
AN	0.081*** (21.02)	0.078*** (20.24)
ESG*AN	-0.011*** (-13.22)	-0.011*** (-13.23)
Size	-0.011*** (-9.73)	-0.008*** (-8.38)
Growth	0.013*** (9.61)	0.010*** (7.55)
Inst	0.048*** (9.82)	0.051*** (10.45)
SOE	-0.002 (-0.89)	-0.003 (-1.00)
Cashflow	0.658*** (41.06)	0.676*** (42.80)
Constant	-0.119 (-1.54)	0.007 (0.34)
Year	YES	YES
Industry	YES	
Observations	21,921	21,921
R-squared	0.213	0.189

Note: * t-statistics in parentheses; *** p < 0.01, ** p < 0.05, * p < 0.1.

the implementation of environmental protection measures increases operating costs and consequently reduces ROE, greater analyst attention helps enhance transparency and makes investors better appreciate the long-term value of environmental strategies, thereby mitigating negative market expectations and stabilizing shareholder confidence.

In contrast to EVN, the coefficients of CSR (+) and CG (+), the interaction term CSR*AN (+) and CG*AN (+), indicate that both CSR and CG are positively associated with ROE, and analyst attention negatively moderates the positive relationship. This could help explain why analyst attention negatively moderates the relationship between ESG and ROE. The first aspect, which can be attributed to the incremental informational value of ESG disclosures, is diminished. Analyst attention is typi-

cally positively correlated with a company's ESG performance. So, with the corporate social responsibility practices becoming institutionalized and corporate governance mechanisms maturing, the ESG performance also be better, and the analyst attention will be higher, much of the value-relevant information about ESG-related disclosures has already been disseminated and incorporated into market prices; there is limited room for further ESG improvement and little opportunity to exceed market expectations. As a result, the positive effect of ESG on ROE may be weakened. The second aspect may be an overreaction by firms to analysts' concerns. As the most effective external monitors in capital markets, research has shown that analysts are more effective than regulators and auditors at detecting financial fraud, so analysts often shape investor expectations through their earnings forecasts, and positive evaluations

Table 8. Analysts' moderating effect regression results between ENV, CSR, CG, and ROE

Variables	OLS	HD-FE	OLS	HD-FE	OLS	HD-FE
	ROE	ROE	ROE	ROE	ROE	ROE
ENV	-0.003*** (-2.99)	-0.002** (-2.39)				
CSR			0.007*** (6.74)	0.008*** (7.80)		
CG					0.032*** (30.92)	0.032*** (31.83)
AN	0.027*** (7.78)	0.024*** (7.11)	0.047*** (15.10)	0.042*** (13.59)	0.088*** (22.87)	0.089*** (22.87)
ENV*AN	0.002*** (2.73)	0.002*** (2.60)				
CSR*AN			-0.002*** (-3.99)	-0.002*** (-3.38)		
CG*AN					-0.011*** (-15.81)	-0.012*** (-16.57)
Size	-0.010*** (-8.69)	-0.008*** (-7.65)	-0.011*** (-9.94)	-0.009*** (-9.09)	-0.007*** (-6.26)	-0.005*** (-4.63)
Growth	0.013*** (9.49)	0.011*** (8.08)	0.013*** (9.62)	0.011*** (8.16)	0.013*** (9.54)	0.010*** (7.95)
Inst	0.048*** (9.66)	0.049*** (10.07)	0.049*** (9.97)	0.052*** (10.61)	0.043*** (8.93)	0.044*** (9.21)
SOE	-0.000 (-0.15)	-0.001 (-0.42)	-0.000 (-0.00)	-0.000 (-0.06)	-0.004 (-1.60)	-0.006** (-2.13)
Cashflow	0.678*** (41.83)	0.689*** (43.13)	0.676*** (41.78)	0.690*** (43.29)	0.649*** (40.84)	0.658*** (42.03)
Constant	-0.020 (-0.26)	0.127*** (5.91)	-0.020 (-0.26)	0.114*** (5.30)	-0.251*** (-3.26)	-0.105*** (-4.76)
Year	YES	YES	YES	YES	YES	YES
Industry	YES		YES		YES	
Observations	21,921	21,921	21,921	21,921	21,921	21,921
R-squared	0.195	0.170	0.196	0.173	0.229	0.207

Note: * t-statistics in parentheses; *** p < 0.01, ** p < 0.05, * p < 0.1.

can significantly enhance firms' market value and financing capabilities. Thus, with increasing analyst attention, managers may face increased pressure to demonstrate ESG commitment, prompting them to engage in greenwashing – the practice of misrepresenting or exaggerating ESG practices and outcomes, especially through soft, qualitative indicators like “employee satisfaction” or “governance transparency” within CSR and CG dimensions, which lack unified quantitative standards and are relatively easy to manipulate, this, in turn, compromises the credibility and accuracy of ESG disclosures, weakens their impact on investor perceptions, and ultimately dilutes their effect on ROE.

Subsequently, this study further explores the media attention moderating effect on the relationship. As presented in Table 9, both ESG performance and media attention have positive and significant effects on ROE. But the interaction term coefficients of ESG*Media are negative and only significant in the HD-FE model, suggesting that media attention may have a negative moderating effect on the relationship, which contradicts the proposed hypothesis (H3).

Table 9. Media's moderating effect regression results

Variables	OLS	HD-FE
	ROE	ROE
ESG	0.028*** (14.01)	0.029*** (14.45)
Media	0.008*** (3.31)	0.008*** (3.37)
ESG*Media	-0.001 (-1.39)	-0.001** (-2.05)
Size	0.001 (0.61)	0.001 (0.52)
Growth	0.013*** (9.17)	0.009*** (6.61)
Inst	0.067*** (13.49)	0.066*** (13.48)
SOE	-0.021*** (-7.61)	-0.022*** (-8.48)
Cashflow	0.748*** (46.39)	0.761*** (48.12)
Constant	-0.330*** (-4.16)	-0.167*** (-7.48)
Year	YES	YES
Industry	YES	
Observations	21,921	21,921
R-squared	0.176	0.154

Note: * t-statistics in parentheses; *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Then, further regression analysis on the ESG subcomponents is being executed to explore the moderating effect, and the results are shown in Table 10. The interaction term coefficients of EVN*Media and CSR*Media are all 0.000 and not statistically significant, and consistent with ESG; the coefficients of CG*Media are negative and significant, suggesting media attention does negatively regulate the relationship between CG and ROE. To thoroughly analyze the reasons behind these results, we primarily focus on the characteristics of media coverage itself, which often carries a sentiment bias; positive, neutral, and negative reports may have different effects. Initially, as an external monitoring mechanism, ESG-related media coverage, no matter what type of emotion it is, can attract greater stakeholder attention, and, in response, firms may proactively enhance their ESG performance and disclosure, thereby contributing to improvements in ROE. But similar to analyst attention, for firms with lower media attention, they have greater potential for ESG improvement; however, as media attention increases, the overall transparency of information and efficiency of market assessments also improve. Beyond a certain point of improvements in ESG performance, the marginal benefits of additional media exposure in terms of information value begin to diminish. This effect is particularly evident in corporate governance (CG), where disclosures help standardize and internalize mechanisms such as board structures, making additional improvements increasingly challenging. Unlike corporate governance, which is an internal management system, environmental protection (EVN) and social responsibility (CSR) are closely related to stakeholders and are therefore more susceptible to the influence of media coverage biases. On the one hand, regardless of whether media coverage is positive or neutral, firms, driven by reputational incentives, tend to enhance their ESG performance and proactively disclose ESG information to increase market recognition, reduce financing costs, and ultimately improve financial performance. Also, as media attention increases, the improvements may have limited effectiveness, especially if excessive reporting is perceived as superficial or driven by public relations motives; the marginal effect of this media-driven promotion diminishes. On the other hand, although negative ESG media coverage can damage a company's reputation, heighten

Table 10. Media's moderating effect regression results between ENV, CSR, CG, and ROE

Variables	OLS	HD-FE	OLS	HD-FE	OLS	HD-FE
	ROE	ROE	ROE	ROE	ROE	ROE
ENV	-0.002 (-0.94)	-0.000 (-0.15)				
CSR			0.006*** (4.48)	0.007*** (4.69)		
CG					0.029*** (19.07)	0.030*** (19.55)
Media	0.007*** (5.48)	0.006*** (4.44)	0.006*** (2.66)	0.003 (1.25)	0.008*** (3.64)	0.008*** (3.40)
ENV*Media	0.000 (0.09)	0.000 (0.13)				
CSR*Media			0.000 (0.42)	0.000 (1.29)		
CG*Media					-0.001* (-1.73)	-0.001** (-2.17)
Size	0.004*** (3.87)	0.003*** (3.02)	0.002** (1.98)	0.001 (1.08)	0.005*** (4.76)	0.005*** (5.20)
Growth	0.013*** (8.98)	0.010*** (7.13)	0.013*** (9.15)	0.010*** (7.15)	0.013*** (9.17)	0.009*** (7.14)
Inst	0.071*** (14.10)	0.068*** (13.68)	0.072*** (14.37)	0.071*** (14.25)	0.059*** (12.03)	0.057*** (11.59)
SOE	-0.021*** (-7.67)	-0.024*** (-9.07)	-0.020*** (-7.24)	-0.021*** (-8.19)	-0.022*** (-8.18)	-0.025*** (-9.61)
Cashflow	0.788*** (48.54)	0.794*** (49.71)	0.781*** (48.15)	0.791*** (49.66)	0.725*** (45.40)	0.730*** (46.45)
Constant	-0.304*** (-3.79)	-0.112*** (-5.14)	-0.279*** (-3.49)	-0.099*** (-4.53)	-0.472*** (-6.01)	-0.291*** (-13.27)
Year	YES	YES	YES	YES	YES	YES
Industry	YES		YES		YES	
Observations	21,921	21,921	21,921	21,921	21,921	21,921
R-squared	0.155	0.132	0.158	0.137	0.194	0.173

Note: * t-statistics in parentheses; *** p < 0.01, ** p < 0.05, * p < 0.1.

market concerns, and suppress financial performance, the public scrutiny triggered by such reports encourages firms to undertake their social responsibilities to mitigate potential risks and adverse effects. These substantive ESG reforms carry greater value and attract increased attention from stakeholders, making related media information more visible and impactful. Consequently, me-

dia attention helps alleviate the negative effects of ESG on financial performance. These two opposing effects result in an insignificant moderating effect of media attention.

Then this study categorizes media attention into positive coverage, neutral, and negative media coverage to verify the moderating effect. The re-

Table 11. Media groups' moderating effect regression results

Variables	OLS	HD-FE	OLS	HD-FE	OLS	HD-FE
	ROE	ROE	ROE	ROE	ROE	ROE
ESG	0.031*** (17.81)	0.031*** (18.28)	0.029*** (18.05)	0.029*** (18.43)	0.025*** (17.27)	0.025*** (17.35)
Positivenews	0.031*** (5.90)	0.034*** (6.34)				
Neutralnews			0.021*** (3.90)	0.022*** (3.97)		
Negativenews					-0.013** (-2.21)	-0.014** (-2.25)

Table 11 (cont.). Media groups' moderating effect regression results

Variables	OLS	HD-FE	OLS	HD-FE	OLS	HD-FE
	ROE	ROE	ROE	ROE	ROE	ROE
ESG*positive	-0.004*** (-3.73)	-0.005*** (-4.48)				
ESG*neutral			-0.003** (-2.44)	-0.004*** (-3.02)		
ESG*negative					0.003** (2.08)	0.002* (1.76)
Size	0.000 (0.45)	0.000 (0.11)	0.001 (1.22)	0.001 (1.04)	0.003*** (2.59)	0.002** (2.20)
Growth	0.013*** (9.22)	0.009*** (6.70)	0.013*** (9.22)	0.009*** (6.63)	0.013*** (9.16)	0.009*** (6.54)
Inst	0.067*** (13.46)	0.066*** (13.40)	0.068*** (13.64)	0.067*** (13.62)	0.069*** (13.97)	0.069*** (14.02)
SOE	-0.021*** (-7.62)	-0.022*** (-8.46)	-0.021*** (-7.74)	-0.022*** (-8.63)	-0.021*** (-7.76)	-0.022*** (-8.65)
Cashflow	0.747*** (46.36)	0.760*** (48.05)	0.748*** (46.43)	0.762*** (48.20)	0.749*** (46.47)	0.765*** (48.37)
Constant	-0.340*** (-4.29)	-0.168*** (-7.70)	-0.344*** (-4.35)	-0.172*** (-8.02)	-0.360*** (-4.56)	-0.169*** (-8.04)
Year	YES	YES	YES	YES	YES	YES
Industry	YES		YES		YES	
Observations	21,921	21,921	21,921	21,921	21,921	21,921
R-squared	0.177	0.156	0.176	0.155	0.175	0.154

Note: * t-statistics in parentheses; *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

gression results are presented in Table 11. The direct coefficients of positive or neutral coverage are positive, while the interaction coefficients are significantly negative at the 5% level or better, indicating that positive or neutral coverage increases ROE but diminishes the positive effect of ESG on ROE. In contrast, the direct coefficients of negative coverage are negative, and the interaction coefficients are significantly positive at least at 10%, indicating that negative news suppresses ROE but strengthens the positive impact of ESG on ROE. Those results further validate our previous analysis.

4. DISCUSSION

The empirical findings of this study further support the conclusions of the existing literature that strong ESG performance can sustainably enhance corporate financial performance, as represented by ROE, indicating that ESG is a long-term value creation strategy. Across the sub-dimensions, the regression results for the EVN, unlike the positive effect of CSR and CG on ROE, are not significant. Different from the

positive (Saleh et al., 2011), negative (Alareeni & Hamdan, 2020), and inverted-U or inverted-V (Lahouel et al., 2020) relationship mentioned before, it further reveals that environmental measures require a balance between costs and benefits to avoid excessive pressure on short-term financial performance.

Compared to prior research, an innovation of this study is its in-depth exploration of the moderating role of analyst and media attention in the relationship between ESG and CFP, filling a gap in the existing literature. Also, different from the positive moderating roles found by Zhang and Wu (2023) and Zhang and You (2024), the empirical results indicate that, as an external governance mechanism, both analysts and media (especially positive and neutral coverage) exert a negative moderating effect on this relationship. Specifically, although higher ESG performance (particularly in CSR and CG aspects) generally helps improve financial performance, this positive effect is inhibited as external attention increases. It is mainly attributed to the reason that as external scrutiny strengthens, the substantive improvements that firms can make to ESG be-

come fewer, the incremental value of ESG information is gradually diminishing, which may lead to “greenwashing” and raise suspicions, thereby weakening the positive impact of ESG on ROE. For more details, when controlling for analyst factors, EVN shows a significantly negative correlation with ROE, and analyst attention plays a mitigating role in the negative relationship. As for the negative media coverage, it suppresses ROE but positively moderates the relationship between ESG and ROE. This is because corporate reputation is crucial for profitability (Baloria & Heese, 2018). While negative reports impose reputation costs, they also incentivize genuine ESG improvements (Cui et al., 2023), which can ultimately benefit long-term financial performance.

Thus, in sum, our findings further demonstrate that analysts and media help translate ESG performance into financial returns by promoting substantive corporate ESG improvements.

In summary, this study offers advancements that different types of external attention may have varying effects on the effectiveness of ESG practices, stemming from the corporate ESG response strategies. It provides important implications for corporate practice. Future research could further explore the specific mechanisms through which analyst and media attention influence the ESG-financial performance relationship across different industries and market contexts.

CONCLUSION

The study aims to examine the relationship between corporate ESG performance and financial performance, specifically focusing on the moderating role of analyst attention and media attention. The results indicate that better ESG performance leads to increased ROE, and this influence is sustained, supporting the view that ESG engagement serves as a long-term value-creation strategy. As for moderating effects, analyst attention negatively modulates the relationship due to the stronger negative effect in CSR and CG than the positive effect in EVN, suggesting that as analyst scrutiny intensifies, firms should shift their ESG focus from merely “practice and disclosure” to “balancing communication with substantive action” to achieve synergies between reputation risk prevention and long-term value creation. Media attention exhibits differential moderating effects on the relationship depending on sentiment; the core of its moderating effect hinges on whether the market perceives ESG practices as substantive. While positive and neutral coverage helps mitigate information asymmetry, excessive promotion may induce market scrutiny over potential “greenwashing” or lack of substance, thereby weakening its positive impact. Conversely, the corrective pressure triggered by negative coverage often drives more substantive ESG improvements, which in turn can secure long-term market recognition.

Overall, these findings provide useful implications for corporate decision-makers, investors, and regulators in developing more effective ESG disclosure and evaluation frameworks. Firms with less attention from analysts and the media should actively enhance their ESG performance and disclosure to fill the information gap, strengthen investor confidence, and boost firm value. However, given the growing attention to this issue, firms should avoid generic or superficial ESG disclosures and overhyping their ESG efforts to avoid backfiring. Investors need to gradually shift from short-term return evaluations to long-term return assessments that cover ESG impacts, thereby fostering positive market incentives. It is important to make investment decisions based on verified ESG metrics rather than only short-term media signals, especially negative media coverage, which should be properly understood, as companies often respond with stronger ESG actions and may produce long-term value. Regulators should strengthen collaboration with industry associations and professional institutions to jointly build a clear, credible, and dynamic ESG regulatory and disclosure framework that integrates mandatory and substantive elements, facilitates the standardization and quantification of disclosure indicators, and thereby effectively guides capital toward truly sustainable enterprises to ultimately drive a green and inclusive transition in the real economy.

AUTHOR CONTRIBUTIONS

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