

Article

Environmental, Social, and Corporate Governance (ESG), Life Cycle, and Firm Performance: Evidence from China

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Abstract: Interest in firms' ESG performance is longstanding and growing. However, understanding remains fragmented across firms at different stages of their life cycle. This study investigates the role of life cycle stages in the relationship between ESG and firm performance in the Chinese context. Using a sample of 26,412 firm-year observations of firms listed in China from 2011 to 2021, the results provide evidence that, although ESG has a significant positive effect on firm performance, the effect is contingent on the stages of the firm's life cycle. The association between ESG and firm performance is more pronounced for firms in the growth and mature phases. We also find that this effect is enhanced for state-owned growth firms localized in regions with a lower marketization degree. Furthermore, the findings also extend the distinct mediation roles of institutional investors and the agency cost of free cash flow in the nexus of ESG and firm performance. This paper provides direct empirical evidence for a better understanding of firm's behavior across different life cycle stages, as well as helps to achieve a win-win situation of firm performance and social value.

Keywords: ESG; firm performance; life cycle



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1. Introduction

The global spread of COVID-19 has prompted the emergence of nucleic acid testing. At the end of 2022, with a number of nucleic acid testing companies seeking a stock exchange listing, the “false-positive” reports of nucleic acid testing results in many Chinese cities seem to reveal the “mysterious veil” of the nucleic acid testing industry in the context of epidemic prevention and control: nucleic acid testing has gradually evolved from representing an initial medical benefit to a tool to make money. The statements of Shanghai Stock Exchange and Shenzhen Stock Exchange strictly examining and approving the IPO of nucleic acid testing companies also convey the current mainstream investment philosophy and corporate action guide—ESG. Traditional investment focuses on financial ratios, especially cash flow, profitability, solvency and operating efficiency. However, the financial disclosure in China has been criticized by investors due to the lack of valuable information and the selective disclosure behavior. Through the mining of non-financial information such as environmental protection and corporate ethics, ESG helps avoid risky investments and generates long-term benefits.

The report to the 20th National Congress of the Communist Party of China clearly points out that the main objectives and tasks for the next five years are to make new breakthroughs in promoting high-quality economic development. The key to promoting high-quality development is to accelerate the transition to a model of green and low-carbon economic and social development. Driven by China's double-carbon policy and widespread prosperity, the research of ESG is not only a breakthrough in pursuing high-quality economic development, but also an effective way to apply the new development philosophy and achieve common prosperity.

ESG refers to the inclusion of environment (environmental), society (social) and corporate governance (governance) in decision-making process, pushing firms to go beyond the

short-term financial benefits and develop strategies for improving social and environmental performance to make the “cake” bigger while dividing the “cake” well. This is highly consistent with the overall requirements of implementing the new development concept and focusing on high-quality development. From the Opinions on Further Improving the Quality of Listed Companies issued by The State Council in 2020, to the Guidelines on Environmental Information Disclosure for Financial Institutions Issued by the People’s Bank of China in 2021, and then to the Guidelines on Investor Relations Management of Listed Companies issued by China Securities Regulatory Commission in 2022, highlighting the opportunity to implement the new development concept and promote the double-carbon policy, ESG is now in the limelight and has become a necessary channel for companies to attract investment. According to ESG Development Report of China’s Listed Companies (2022), the overall disclosure rate of ESG-related reports of A-share listed companies exceeded 30% in 2021, and the disclosure rate of the ESG of CSI 300 listed companies also showed a steady and rapid growth trend. Obviously, more and more companies are establishing their sense of voluntary ESG disclosure. Can green development, social responsibility, and business ethics help companies attract more investment to enhance value-creation? Based on this practice orientation, it becomes an important proposition to study the relationship between ESG and firm performance to gain the favor of investors.

Since Haire [1] first applied the life cycle theory to the research of enterprise issues, it has attracted much attention among practitioners and academics. As an important characteristic of enterprises, most prior studies have proved that resource allocation, financial constraints, business strategies, information disclosure, and so on vary across different life cycle stages. Therefore, the impact of ESG on firm performance is bound to vary greatly due to the heterogeneity in the time dimension. Specifically, this study aims to solve the following problems based on the perspective of a life cycle: First, does the impact of ESG on firm performance vary at different stages of the life cycle. Second, does the impact differ from the nature of property rights and the degree of marketization for the sub-samples at different stages of the life cycle. Third, what are the potential mechanisms linking ESG and firm performance. The possible contribution of this study is mainly reflected in the three following aspects: First, we provide the latest evidence on the effect of ESG on firm performance at different stages of the life cycle, expanding and enriching the literature on the economic consequences of ESG, as well as broadening the scope of the life cycle theory. It is helpful to provide a more timely and comprehensive understanding of the practice of ESG in the Chinese capital market. Second, we investigate the influence of ESG on firm performance under the conditions of different life cycle stages. Third, based on China’s unique institutional environment, we further clarify the mechanism of ESG affecting firm performance.

Given that a unified disclosure standard has not been formed in the Chinese capital market, ESG, as an emerging field with many relevant studies, is not the subject of consensus or shared conclusions. Hendratama and Huang [2] proved that the lack of conclusive results may be attributable to the omission of an important factor that can influence the relationship between CSR and firm value, namely life cycle. In this study, the effect of ESG on firm performance is investigated by a subdivision of the life cycle to analyze the influence and potential underlying mechanisms.

The remainder of this paper is structured as follows. Section 2 provides the literature review and hypothesis development. Section 3 describes the research design. Sections 4–6 present the results and discussions. Section 7 provides the conclusions.

2. Theory and Hypothesis Development

Prior literature reviews on ESG have mainly focused on its influencing factors and economic consequences, and most studies have been based on the information asymmetry theory and the signal transmission theory. On the one hand, ESG can ease financial constraints [3–5], lower the cost of capital [6,7], improve customer and employee satisfaction [8,9], and integrate the goal of firm value maximization with the interests of various

stakeholders to create competitive advantages [10]; on the other hand, the disclosure of information related to ESG can positively signal the future development prospects of a firm, helping establish a good image to obtain higher reputation and create difficult-to-replicate reputation benefits [11–13]. As for the economic consequences of ESG, although a small number of scholars doubt that the short-term costs of adopting CSR typically outweigh the immediate financial benefits and may take years to improve the competitive position [14], it often appears in firms with mandatory information disclosure [15]. Prior studies generally support the view that ESG can help firms diversify their values, and that this positive impact is more effective in voluntary disclosure firms [16,17]. Furthermore, the positive performance of ESG practice is the transmission effect of external capital market participants, such as the shareholding preference of institutional investors [18,19], analyst coverage [20,21]; media supervision [22,23]; as well as the competitive strategy, innovation effect, cost effect [17,24,25], etc.

2.1. ESG and Firm Performance

Prior literature reviews generally support the value-enhancing view of ESG. First of all, based on the theory of information asymmetry, firms with a superior ESG responsibility performance can reduce information asymmetry, improve transparency, attract investment, and thus enhance their value. The disclosure of ESG information makes up for the exclusive and excessive attention that the capital market attributes to financial information, and provides a window for stakeholders to fully understand the situations of firms. Through the disclosure of environmental protection, social responsibility, and corporate governance, firms establish two-way communication with investors to gain their recognition and support, so as to alleviate conflicts and transaction costs. In addition, the signal transmission theory points out that, by disclosing ESG information and providing higher rating scores through third parties, firms are positively perceived by the market, which will send a positive signal to the outside, persuading investors to believe that they are not only constrained to short-term profits, but pay more attention to long-term sustainable development. This, in turn, attracts more investors, especially institutional investors, who signal to individual investors judged by their professional advantage that these firms have high growth potential and can bring stable returns, so as to achieve the effect of attracting external investment. Secondly, as China's ESG demand is more policy-oriented, firms with superior ESG responsibility performances can help build a good social image and regain reputation. According to the theory of resource dependence, the investment in environmental protection and green transformation cannot only become an important strategic resource and competitive advantage, but also help firms obtain more national policy support and tilt, which is necessary to the core competitiveness of those firms occupying the market in China's "relational society". In addition, once a positive social image and reputation are established, in order to maintain and benefit from these, firms will try to eliminate the emergence of negative problems such as financial fraud and internal control defects, and pay attention to performance while considering externalities. Hence, this study states our first hypothesis below:

H1. *ESG has a positive effect on enhancing firm performance.*

2.2. ESG, Firm Performance, and Life Cycle Stages

Firms at different life cycle stages vary in their business strategies, profitability, market recognition, etc. Specifically, in the growth phase, there is a strong demand for development, as firms have to actively respond to the market call, and be dedicated to the practice of ESG in order to occupy and improve their market shares, alleviate agent conflicts by reducing the degree of information asymmetry, and then obtain long-term capital support from investors—especially institutional investors. When profitability tends to stabilize for mature firms, development opportunities begin to shrink and management no longer hopes to rapidly expand their market share. However, by paying more attention to environmental protection, social responsibility, and corporate governance by practicing ESG in order to

stabilize the existing market, mature firms can focus on building positive managerial and corporate reputations. This enables firms to gain the trust of the public and attract investors who have a large amounts of cash flows, ultimately achieving the purpose of enhancing their value. Finally, in the decline phase, firms are bound to tighten their purse strings to reduce potential future risk losses as the internal governance mechanism of the organization gives rise to more problems and chaos [26]. When facing the great uncertainties of future development, practicing ESG is likely to lead to further financial difficulties by producing additional operating costs. However, the early accumulation of positive social reputation at this time is likely to play a moderate effect, which makes the influence on firms uncertain. Hence, this study puts forward our second hypothesis below:

H2. *Compared with firms in decline, ESG plays a positive role in the growth and mature phases.*

3. Research Design

3.1. Sample

Our initial sample consists of all Chinese A-share listed companies from 2011 to 2021. We selected 2011 as the starting point because ESG is largely recognized as a Western phenomenon and has generally been implemented in the context of Western countries, such as Western Europe and the United States [2]. Recognizing the increasing awareness and importance of ESG, growing ESG practices and reporting have been noted in China, resulting in more ESG-related data being available from that time. In line with previous studies, we excluded firms in the financial and insurance industries because of their atypical characteristics in terms of operating and reporting. We also excluded firm years flagged as receiving “Special Treatment” (ST) from stock exchanges and having a liability ratio larger than 1. After the deletion of observations with missing values, the data collection resulted in an unbalanced panel dataset which comprised 26,412 firm–year observations. The ESG data in this study were provided by the Wind database in addition to other corporate financial data from the CSMAR database, and the regional marketization index was from the China Market Index, as compiled by Fan et al. [27].

3.2. Measures

Considering that Tobin’s Q can overcome the limitation of book value affected by accounting policies and effectively predict investment risks and returns, which is considered superior in terms of capturing firm value as it provides market estimates of firm growth and potential profit rather than just historical or subjective estimates, this study employs Tobin’s Q to capture firm performance [28–30].

Considering the great subjectivity and limitations of self-constructed indicators in information coverage, this study employs the ESG score of a firm based on the environmental, social, and corporate governance information provided by the Wind database as the core explanatory variable. Given that this ESG evaluation system was divided into nine grades, we adopted a nine-point system to assign ESG responsibility performance. The higher the score, the better the ESG responsibility performance.

According to the model by Dickinson [31], the life cycle of listed companies is usually divided into three stages: growth, mature, and decline. Taking advantage of its high sensitivity, strong objectivity, and easy judgment procedure into consideration, this study classifies firms into three life cycle stages based on the net cash flow from their operating, investing, and financing activities in order to fully reveal the profitability and operational risk of firms at different life cycle stages. At the same time, for the convenience of the subsequent expression, full, growth, mature, and decline refer to the whole sample, the growth phase sub-samples, the mature phase sub-samples, and the decline phase sub-samples, respectively.

Following previous studies [32–34], we use the percentage of shares held by institutional investors as a proxy for institutional investors’ shareholding. Prior studies have verified that the agency cost caused by information asymmetry is closely related to free cash flow. The monitoring difficulty creates the potential for management to spend their

internally generated cash flow on projects that are beneficial from a management perspective but costly from a shareholder perspective. Therefore, we follow the research by Gao et al. [35] and Liu and Zhang [36], who used corporate profit before interest and tax, plus depreciation and amortization, minus increased working capital, and minus the capital expenditure scaled by total assets to truly reflect the agency cost of free cash flow.

In line with previous studies [37–40], we also include several control variables, such as the debt ratio (Lev), growth ability (Growth), profitability (Roa), cash assets ratio (Cash), board independence (Indep), separation rate (Sep), equity concentration (Top1), firm size (Size), nature of property rights (SOE), and market index (Market). The variable definition table is shown in Table 1.

Table 1. Definitions of variables.

Variable	Symbol	Definition
Firm performance	Tobin's Q	market value of equity scaled by total assets
ESG	ESG	an evaluation index comes from the social responsibility report published by Wind database
Institutional investors	Hold	percentage of shares held by institutional investors
Free cash flow	Fcf	corporate profit before interest and tax plus depreciation and amortization minus increased working capital minus capital expenditure scaled by total assets
Solvency	Lev	ratio of total liabilities to total assets
Growth ability	Growth	ratio of sales revenue growth
Profitability	Roa	ratio of net profits to total assets
Cash asset ratio	Cash	ratio of cash and cash equivalents to total assets
Board independence	Indep	ratio of independent directors to total directors
Separation	Sep	the difference between control and ownership of a listed company owned by the actual controller
Equity concentration	Top1	number of shares held by the largest shareholder divided by total number of shares
Firm size	Size	natural logarithm of the firm's total assets at the end of the year
Nature of property rights	SOE	an indicator variable that equals 1 for state-owned enterprises, and 0 otherwise
Marketization index	Market	Chinese province market index

3.3. Research Method

We employ ordinary least squares (OLS) regression to investigate the effect of ESG on firm performance across different life cycle stages, and design the following model to test our hypotheses:

$$\text{Tobin's } Q_{i,t} = \alpha + \beta \text{ESG}_{i,t} + \varphi \sum \text{Controls}_{i,t} + \sum \text{Year} + \sum \text{Industry} + \varepsilon_{i,t} \quad (1)$$

where i, t denote firm i and year t , respectively. The dependent variable is Tobin's Q. The two major independent variables, ESG and life cycle, were defined in Section 3.2. This study controls for the industry and year fixed effects, and focuses on the significance of the coefficients of ESG in model (1).

Although OLS captures the effect of a firm's ESG responsibility more accurately, it may introduce endogenous concerns into the estimation. For example, it may be affected by omitted variables that can simultaneously influence a firm's ESG responsibility performance.

Thus, to overcome endogenous problems, we design a two-stage least squares method (2SLS) to investigate the relationship between ESG and firm performance, together with numerous robustness checks, and heterogeneity tests aiming to increase the scientific value.

4. Results

4.1. Descriptive Statistics

Table 2 presents descriptive statistics for all variables in our regression sample. Variables across different life cycle stages are shown in Table 3. It can be seen that 45.91% of the samples are classified as growth firms, 36.44% are mature firms, and those remaining are declining firms, which is consistent with the current development trend of the Chinese capital market. It can also be found that, with the progression of the life cycle, firms present an inverted U-shaped in profitability, namely rapidly developing from the growth stage to the peak of the mature stage, and then gradually declining, which is also consistent with the theory of the life cycle. Based on the remaining financial indicators, the findings show that firms' financial performance in the mature phase is relatively high. ESG responsibility performance has an average value of more than 6.5. Combined with the proportion of ESG information concerning A-share listed companies disclosed in China ESG Development White Paper (2021), this suggests that Chinese firms are attaching increasing importance to the fulfillment of ESG responsibility, indicating that ESG has an irreversible potential.

Table 2. Descriptive statistics of full samples.

Variable	Mean	SD	Min	Median	Max	N
Tobin's Q	2.0008	1.2511	0.8089	1.6016	11.0606	26,412
ESG	6.5664	1.0741	3.0000	6.0000	9.0000	26,412
Lev	0.4031	0.1990	0.0291	0.3935	0.8644	26,412
Growth	0.1967	0.3791	−0.5216	0.1273	3.8082	26,412
Roa	0.0580	0.0462	0.0011	0.0473	0.2730	26,412
Cash	0.1700	0.1293	0.0103	0.1327	0.7775	26,412
Indep	0.3757	0.0532	0.3000	0.3636	0.5714	26,412
Sep	4.4897	7.2726	0.0000	0.0000	29.3172	26,412
Top1	35.4378	14.7652	9.1300	33.5050	76.4400	26,412
Size	22.2266	1.2967	19.8522	22.0288	26.5158	26,412

Table 3. Descriptive statistics of sub-samples.

Variable	Mean	Growth		Mean	Mature		Mean	Decline	
		SD	Median		SD	Median		SD	Median
Tobin's Q	1.9167	1.1157	1.5718	2.0662	1.3501	1.6264	2.0843	1.3543	1.6473
ESG	6.5081	1.0340	6.0000	6.6612	1.0983	6.0000	6.5222	1.1119	6.0000
Lev	0.4325	0.1942	0.4311	0.3779	0.1962	0.3600	0.3787	0.2066	0.3517
Growth	0.2529	0.4114	0.1677	0.1486	0.3069	0.1020	0.1495	0.4056	0.0868
Roa	0.0564	0.0443	0.0463	0.0637	0.0491	0.0531	0.0503	0.0434	0.0393
Cash	0.1618	0.1219	0.1280	0.1704	0.1355	0.1300	0.1905	0.1330	0.1564
Indep	0.3760	0.0530	0.3636	0.3748	0.0535	0.3333	0.3769	0.0532	0.3636
Sep	4.2738	7.0530	0.0000	4.8356	7.5816	0.0000	4.3370	7.1576	0.0000
Top1	34.5583	14.2921	32.5700	36.9568	15.2747	35.5050	34.5893	14.6551	32.0700
Size	22.2480	1.2895	22.0404	22.2975	1.3444	22.0954	22.0243	1.1910	21.8569
N		12,127			9624			4661	
Pct		45.91%			36.44%			17.65%	

4.2. Empirical Results

Table 4 shows the results of the baseline regression. Specifically, we find that the ESG performance is significantly positively associated with the firm's performance ($\beta = 0.0310^{***}$) measured by Tobin's Q which supports hypothesis H1. Combined with the regression results of sub-samples, in terms of the absolute value of the regression coefficients, it appears that the

association between ESG and the growing firms ($\beta = 0.0412$ ***) is more positive than that of mature firms ($\beta = 0.0283$ ***). In contrast to the notion of disclosing information to improve value, the coefficient of ESG performance in the decline phase is 0.0088, indicating that the improvement effect of ESG on the performances of declining firms is not obvious. This suggests that the extent to which a firm's performance can be improved by the effects of ESG varies across different life cycle stages. All these findings, as reported in Table 4, support hypothesis H2.

Table 4. Results of the baseline regression.

Variable	Full Tobin's Q	Growth Tobin's Q	Mature Tobin's Q	Decline Tobin's Q
ESG	0.0310 *** (4.7716)	0.0412 *** (4.4413)	0.0283 *** (2.5957)	0.0088 (0.5688)
Lev	0.2650 *** (5.0063)	0.0997 (1.2848)	0.5138 *** (6.1655)	0.5310 *** (4.1798)
Growth	0.0335 (1.5324)	0.1165 *** (4.3198)	0.0262 (0.5364)	−0.0428 (−0.8130)
Roa	7.5951 *** (30.8598)	5.8349 *** (16.4933)	10.1786 *** (26.0292)	6.8089 *** (10.9606)
Cash	−0.1694 ** (−2.4605)	−0.5492 *** (−5.8749)	−0.0087 (−0.0753)	0.2245 (1.4140)
Indep	0.6609 *** (5.3618)	0.5086 *** (3.1243)	0.8593 *** (3.8925)	0.5837 ** (2.0369)
Sep	0.0026 *** (3.1537)	0.0011 (0.9696)	0.0014 (1.0220)	0.0057 *** (2.6848)
Top1	−0.0034 *** (−7.7204)	−0.0046 *** (−7.7016)	−0.0028 *** (−3.6768)	−0.0025 ** (−2.2370)
Size	−0.2918 *** (−35.7941)	−0.2118 *** (−19.6654)	−0.3292 *** (−25.4158)	−0.4918 *** (−21.0390)
Constant	7.5695 *** (38.5516)	5.7821 *** (22.9969)	8.1339 *** (26.1173)	11.9991 *** (23.0805)
Year	YES	YES	YES	YES
Industry	YES	YES	YES	YES
N	26,412	12,127	9624	4661
Adj.R ²	0.3432	0.3256	0.3925	0.3852

Note: **, *** indicate that the estimated coefficient is statistically significant at the 10 percent, 5 percent, and 1 percent levels, respectively; standard errors are clustered at the industry level and reported in parentheses below the estimated coefficients; all continuous variables are winsorized at the top and bottom 1 percent of their distribution.

4.3. Endogeneity Test

4.3.1. Instrumental Variable Analysis (IV)

Given that 2SLS is one of the strongest and most efficient techniques for the consistent estimation of the simultaneous equations with endogenous predictors [41], this study, like many previous researchers in the area, also employs a two-stage least squares (2SLS) estimator, constituting the preferred choice for the asymptotically unbiased estimation of the models using instrumental variables to address endogeneity, which is mainly caused by omitted variables or simultaneity [42–44]. In fact, whilst ESG affects firm performance, the development of a firm itself will also affect ESG. In order to avoid producing potentially biased and inconsistent results, especially in the presence of endogeneity, this study employs the ESG industry median (AvgESG) as the IV, like many other studies in this field [35,45]. Since the instrumental variable is exogenous and only affects the dependent variable through its influence on ESG, we perform a 2SLS test to investigate the relationship between the ESG and firm performance. The results are presented in Table 5. Columns (1), (3), (5), and (7) report the results of the first-stage regressions with firms at different life cycle stages. This reveals that the relationship between the ESG and firm performance is positive and highly significant across life cycle stages, which is consistent with our prediction that ESG plays a critical role in improving a firm's performance. The untabulated F statistics for weak instrument tests, exceeding the generally accepted 10 percent

maximal critical value of 16.38, indicates that our estimation is not subject to the weak instrument problem. Columns (2), (4), (6), and (8) present the results of the second-stage regressions, using the estimated AvgESG as independent variables. The coefficients estimated for AvgESG are 0.3482 *** and 0.2829 *** in the growth and mature phases, respectively, which is significant at the 1 percent level. This enables us to make a causal inference between ESG and firm performance without the endogenous problems.

Table 5. Results of the regression of the instrumental variables.

Variable	Full		Growth		Mature		Decline	
	ESG (1)	Tobin's Q (2)	ESG (3)	Tobin's Q (4)	ESG (5)	Tobin's Q (6)	ESG (7)	Tobin's Q (8)
AvgESG	0.5840 *** (0.0072)		0.4097 *** (0.0382)		0.6511 *** (0.0628)		0.4816 *** (0.0446)	
ESG		0.2563 *** (0.0571)		0.3482 *** (0.0976)		0.2829 *** (0.1042)		0.0868 (0.0932)
Lev	−0.3147 *** (0.0392)	0.3660 *** (0.0594)	−0.2957 *** (0.0656)	0.1980 ** (0.0826)	−0.5889 *** (0.0974)	0.6994 *** (0.1455)	−0.4354 *** (0.0759)	0.5395 *** (0.0933)
Growth	−0.0993 *** (0.0144)	0.0727 *** (0.0244)	−0.1980 *** (0.0206)	0.1769 *** (0.0336)	−0.1295 *** (0.0374)	−0.0060 (0.0559)	−0.1181 *** (0.0337)	0.0328 (0.0506)
Roa	1.3432 *** (0.1348)	7.2607 *** (0.2599)	1.5663 *** (0.2212)	5.3765 *** (0.3925)	2.0878 *** (0.3796)	6.2798 *** (0.6264)	1.2004 *** (0.2451)	10.1128 *** (0.4034)
Cash	0.1933 *** (0.0441)	−0.2123 *** (0.0705)	0.2401 *** (0.0736)	−0.6357 *** (0.0988)	0.1837 (0.1183)	0.1599 (0.1646)	0.0486 (0.0845)	−0.0130 (0.1150)
Indep	−0.0450 (0.0960)	0.6636 *** (0.1253)	−0.1676 (0.1561)	0.5408 *** (0.1696)	0.0435 (0.2602)	0.5710 * (0.2914)	0.1160 (0.1820)	0.8510 *** (0.2197)
Sep	−0.0016 ** (0.0007)	0.0022 ** (0.0009)	−0.0001 (0.0012)	0.0013 (0.0012)	−0.0002 (0.0020)	0.0061 *** (0.0022)	0.0074 *** (0.0013)	0.0011 (0.0015)
Top1	0.0029 *** (0.0004)	−0.0039 *** (0.0005)	0.0003 (0.0006)	−0.0048 *** (0.0006)	0.0036 *** (0.0011)	−0.0034 *** (0.0012)	0.0019 *** (0.0007)	−0.0029 *** (0.0008)
Size	0.2333 *** (0.0058)	−0.3729 *** (0.0224)	0.3346 *** (0.0087)	−0.3172 *** (0.0350)	0.3762 *** (0.0149)	−0.5980 *** (0.0478)	0.3478 *** (0.0100)	−0.3501 *** (0.0362)
Constant	−2.7988 *** (0.1449)		−4.0578 *** (0.3150)		−5.6345 *** (0.5678)		−4.6802 *** (0.3899)	
Year	YES	YES	YES	YES	YES	YES	YES	YES
Industry	YES	YES	YES	YES	YES	YES	YES	YES
N	26,411	26,411	12,126	12,126	9624	9624	4661	4661
Adj.R ²	0.4124	0.1287	0.2670	0.0461	0.2942	0.1690	0.2496	0.2152
Kleibergen–Paap rk LM		315.214 [0.0000]		110.033 [0.0000]		97.992 [0.0000]		109.291 [0.0000]
Kleibergen–Paap rk Wald F		337.313 {16.38}		114.966 {16.38}		107.560 {16.38}		116.602 {16.38}

Note: *, **, *** indicate that the estimated coefficient is statistically significant at the 10 percent, 5 percent, and 1 percent levels, respectively; standard errors are clustered at the industry level and reported in parentheses below the estimated coefficients.

4.3.2. Robust Check

We conduct a battery of checks on the robustness of our baseline regression. The results are summarized in the following Tables 6–10.

Table 6. Results of the regression of industry–year fixed effects.

Variable	Full Tobin's Q	Growth Tobin's Q	Mature Tobin's Q	Decline Tobin's Q
ESG	0.0237 *** (0.0083)	0.0304 *** (0.0106)	0.0303 ** (0.0126)	−0.0083 (0.0166)
Lev	0.4166 *** (0.0814)	0.1438 (0.0935)	0.5196 *** (0.1139)	0.3296 ** (0.1478)
Growth	0.0030 (0.0199)	0.0737 *** (0.0256)	0.0060 (0.0445)	−0.0379 (0.0400)

Table 6. Cont.

Variable	Full Tobin's Q	Growth Tobin's Q	Mature Tobin's Q	Decline Tobin's Q
Roa	6.6312 *** (0.3238)	5.5902 *** (0.4040)	9.4203 *** (0.5114)	6.4568 *** (0.6358)
Cash	−0.4512 *** (0.0873)	−0.7152 *** (0.0938)	−0.0882 (0.1458)	0.2289 (0.1722)
Indep	0.5590 *** (0.1729)	0.7270 *** (0.2002)	0.4594 * (0.2562)	0.3022 (0.3046)
Sep	0.0022 (0.0016)	−0.0006 (0.0016)	0.0036 (0.0023)	0.0035 (0.0024)
Top1	−0.0089 *** (0.0008)	−0.0092 *** (0.0008)	−0.0072 *** (0.0011)	−0.0069 *** (0.0014)
Size	−0.3033 *** (0.0142)	−0.2147 *** (0.0146)	−0.3372 *** (0.0175)	−0.4554 *** (0.0283)
Constant	7.6278 *** (0.3061)	5.8163 *** (0.2951)	8.0994 *** (0.3929)	11.1114 *** (0.5708)
Year	YES	YES	YES	YES
Firm	YES	YES	YES	YES
N	26,412	12,127	9624	4661
Within R ²	0.2508	0.2671	0.2420	0.3528

Note: *, **, *** indicate that the estimated coefficient is statistically significant at the 10 percent, 5 percent, and 1 percent levels, respectively; standard errors are clustered at the industry level and reported in parentheses below the estimated coefficients.

Table 7. Results of the regression of lagged explanatory variables.

Variable	Full Tobin's Q	Growth Tobin's Q	Mature Tobin's Q	Decline Tobin's Q
L.ESG	0.0281 *** (3.8511)	0.0375 *** (3.6520)	0.0218 * (1.7741)	0.0117 (0.6575)
L.Lev	0.0101 (0.1727)	−0.1850 ** (−2.1724)	0.3976 *** (4.0415)	0.0623 (0.4502)
L.Growth	0.0398 ** (1.9661)	0.0949 *** (3.7891)	0.0543 (1.0872)	−0.0302 (−0.7065)
L.Roa	6.9039 *** (25.2958)	5.5317 *** (13.7134)	9.2304 *** (21.5597)	5.6248 *** (7.9645)
L.Cash	0.1857 ** (2.3813)	0.0437 (0.3855)	0.2099 * (1.6612)	0.3672 * (1.9280)
L.Indep	0.5481 *** (3.8947)	0.1073 (0.5859)	1.0306 *** (4.0741)	0.7548 ** (2.1922)
L.Sep	0.0039 *** (3.9338)	0.0038 *** (2.7532)	0.0016 (1.0146)	0.0079 *** (2.8863)
L.Top1	−0.0010 * (−1.9552)	−0.0034 *** (−4.6388)	−0.0005 (−0.5875)	0.0026 * (1.8934)
L.Size	−0.2842 *** (−31.5563)	−0.2170 *** (−18.0789)	−0.3353 *** (−22.1374)	−0.4108 *** (−16.5723)
Constant	7.3874 *** (32.7990)	5.9203 *** (21.2026)	8.0326 *** (21.8208)	10.3041 *** (17.9383)
Year	YES	YES	YES	YES
Industry	YES	YES	YES	YES
N	20,485	9427	7626	3432
Adj.R ²	0.3585	0.3503	0.3878	0.3663

Note: *, **, *** indicate that the estimated coefficient is statistically significant at the 10 percent, 5 percent, and 1 percent levels, respectively; standard errors are clustered at the industry level and reported in parentheses below the estimated coefficients.

Table 8. Results of the regression of replacement of firm performance.

Variable	Full CV	Growth CV	Mature CV	Decline CV
ESG	0.0141 *** (6.3783)	0.0183 *** (5.6192)	0.0116 *** (3.1621)	0.0079 (1.5150)
Lev	0.1108 *** (6.4698)	0.0569 ** (2.1564)	0.2169 *** (7.9695)	0.1717 *** (4.5527)
Growth	0.0089 (1.3882)	0.0428 *** (5.0293)	−0.0041 (−0.2779)	−0.0231 * (−1.6956)
Roa	3.0366 *** (40.9995)	2.4234 *** (21.9434)	3.9715 *** (35.1231)	2.7791 *** (14.3604)
Cash	−0.1012 *** (−4.5859)	−0.2317 *** (−7.3281)	−0.0771 ** (−2.2291)	0.0764 (1.4835)
Indep	0.1850 *** (4.5223)	0.1823 *** (3.1956)	0.2302 *** (3.2944)	0.0977 (1.0073)
Sep	0.0010 *** (3.3938)	0.0006 (1.3837)	0.0006 (1.1799)	0.0019 ** (2.5345)
Top1	−0.0012 *** (−7.8632)	−0.0018 *** (−8.1856)	−0.0009 *** (−3.6852)	−0.0006 * (−1.6456)
Size	0.8540 *** (337.8155)	0.8839 *** (241.3417)	0.8365 *** (210.6086)	0.7878 *** (117.6470)
Constant	3.4828 *** (55.4582)	2.7695 *** (29.7197)	3.8391 *** (39.1153)	4.9389 *** (33.2503)
Year	YES	YES	YES	YES
Industry	YES	YES	YES	YES
N	26,412	12,127	9624	4661
Adj.R ²	0.9135	0.9237	0.9193	0.8838

Note: *, **, *** indicate that the estimated coefficient is statistically significant at the 10 percent, 5 percent, and 1 percent levels, respectively; standard errors are clustered at the industry level and reported in parentheses below the estimated coefficients.

Table 9. The specific division of corporate life cycle stages.

SG			ER		CE		AGE	
Feature	Score		Feature	Score	Feature	Score	Feature	Score
Growth	high	3	low	3	high	3	low	3
Mature	medium	2	medium	2	medium	2	medium	2
Decline	low	1	high	1	low	1	high	1

Table 10. Results of the regression of changing the life cycle classification method.

Variable	Full Tobin's Q	Growth Tobin's Q	Mature Tobin's Q	Decline Tobin's Q
ESG	0.0310 *** (4.7716)	0.0438 *** (3.8638)	0.0373 *** (3.8254)	0.0161 (1.2100)
Lev	0.2650 *** (5.0063)	0.0157 (0.1949)	0.2507 *** (3.1086)	0.4486 *** (3.7925)
Growth	0.0335 (1.5324)	0.1510 *** (3.6952)	0.0064 (0.2283)	0.0169 (0.2757)
Roa	7.5951 *** (30.8598)	8.1323 *** (23.1874)	7.7403 *** (19.2762)	6.0956 *** (9.2899)
Cash	−0.1694 ** (−2.4605)	−0.3238 *** (−3.1035)	−0.1721 (−1.5688)	0.1916 (1.1550)
Indep	0.6609 *** (5.3618)	0.3397 * (1.6588)	0.6164 *** (3.3782)	1.0555 *** (3.8271)
Sep	0.0026 *** (3.1537)	0.0050 *** (3.6785)	0.0011 (0.8730)	0.0015 (0.8470)
Top1	−0.0034 ***	−0.0051 ***	−0.0021 ***	−0.0027 ***

Table 10. Cont.

Variable	Full Tobin's Q	Growth Tobin's Q	Mature Tobin's Q	Decline Tobin's Q
	(−7.7204)	(−7.0367)	(−3.0384)	(−2.7331)
Size	−0.2918 ***	−0.1604 ***	−0.2859 ***	−0.4910 ***
	(−35.7941)	(−13.3497)	(−23.0587)	(−25.4639)
Constant	7.5695 ***	4.5966 ***	7.7280 ***	11.8343 ***
	(38.5516)	(16.8862)	(23.9093)	(27.5866)
Year	YES	YES	YES	YES
Industry	YES	YES	YES	YES
N	26,412	10,179	10,348	5885
Adj.R ²	0.3432	0.3598	0.3513	0.3767

Note: *, **, *** indicate that the estimated coefficient is statistically significant at the 10 percent, 5 percent, and 1 percent levels, respectively; standard errors are clustered at the industry level and reported in parentheses below the estimated coefficients.

Table 6 presents the regression results using industry–year fixed effects rather than industry and year fixed effects in our baseline regression. Incorporating industry–year fixed effects can help us to control for the influence of industry-level unobservable factors in each year. The coefficient of the effect of ESG is both positive and significant below the 5 percent level in the growth and mature phases.

Table 7 presents the regression results using the lagged regressed variables rather than the contemporaneous regressed variables in our baseline regression. Lagged core explanatory variables are considered to be an effective method that can address endogeneity. This paper refers to existing studies and uses a 1-year lagged core explanatory variable treatment to address endogeneity disturbances. The final estimation results remain robust.

To further test the relationship between ESG, firm performance, and life cycle, the model is also estimated using the natural logarithm of the market value (CV) as a proxy for firm performance [46]. Table 8 presents the regression results. It can be found that the regression results are consistent with the baseline regression results.

Table 10 presents the regression results using both univariate and multivariate ranking procedures [47,48] to reclassify firms into life cycle stages. We use four classification variables: the growth in revenue (SG), the retained earnings rate (ER), the capital expenditure rate (CE), and the age of the firm (AGE) (Table 9 shows the specific division of the corporate life cycle stages). We then rank firms on each of the four life cycle descriptors and group them into various life cycle stages. Once a firm–year is assigned to a group, it is given a score (growth = 1, mature = 2, and decline = 3). For example, a firm–year with a low SG (a candidate for the ‘decline’ stage) is given a score of one for the sales growth variable and a firm–year with a low ER (a candidate for the ‘growth’ stage) is given a score of three for the variable of earnings retained. We create three life cycle groups using SG, ER, CE, and AGE as descriptors based on a composite score obtained by summing the individual variable scores. When we use the composite scoring technique, 10,179 firms remain in the growth phase, 10,348 firms are classified as being in the mature phase, and 5885 firms are in the decline phase. As can be seen, the sign and significance of the coefficients of the explanatory variables are basically consistent with the results of the baseline regression, which again verifies the robustness of the conclusions of this paper, namely that ESG has a positive and significant effect on firm performance across the life cycle. Nevertheless, the effect varies. For firms in the growth and mature phases, ESG is significantly positively correlated with the improvement in firm value, but the conclusion is not applicable for declining firms.

5. Heterogeneity Analysis

Different types of firms are bound to vary in terms of resource supply, financial constraints, investment efficiency, and other aspects. The possible impact of the structural influence caused by the heterogeneity in enterprises and the institutional environment

attributes on the dynamic value promotion effect of ESG responsibility performance cannot be ignored. Therefore, consistent with the findings of existing research, this subsection tests the ownership structure and the marketization process of the region from the perspective of a firm life cycle, aiming to provide empirical support for a deeper understanding of the difference in the value enhancement and promotion effect of ESG responsibility performance.

5.1. The Influence of Nature of Property Rights

In China, the nature of property rights greatly affect the motivation and the effect of ESG. Given that the baseline regression shows that the ESG has an insignificant effect on the performance of a firm in the decline phase, subsequent studies will mainly analyze firms in the growth and mature phases. In this subsection, we split our sample into four sub-samples according to the nature of property rights and life cycle stages. The empirical results are shown in Table 11. The findings prove that, compared with state-owned firms, non-state-owned firms show a greater improvement for the significant positive connection of ESG with Tobin's Q. As Li et al. [49] pointed out, compared with non-state-owned firms, state-owned firms have a tighter political connection with governments, and tend to assume more social responsibilities while enjoying policy preferences in their operational activities. Considering that the concept of sustainable development represented by ESG has been elevated to an important national strategy, due to the support and response to this policy orientation, the motivation of state-owned firms to practice ESG is to complete the "political tasks" of local governments that may lack the necessary enthusiasm. In addition, the inherent stereotype makes the public take the ESG practices of state-owned firms for granted, and create high requirements and expectations for their ESG implementation; instead, non-state-owned firms are more pure as economic participants focusing on firm performance, and their motivation for practicing ESG is more based on the demands of stakeholders and the drive to achieve the ultimate goal of enhancing value. Thus, once non-state-owned firms show high participation in ESG, they will send a positive signal to the public, obtain more social support and greater social recognition in a short time, attract a large amount of cash flow, and in turn increase firm value by alleviating financial constraints.

Table 11. Regression results of the heterogeneity in the nature of property rights.

Variable	State-Owned Enterprises			Non-State-Owned Enterprises		
	Full Tobin's Q	Growth Tobin's Q	Mature Tobin's Q	Full Tobin's Q	Growth Tobin's Q	Mature Tobin's Q
ESG	0.0231 *** (2.6193)	0.0452 *** (3.6813)	0.0102 (0.6783)	0.0281 *** (3.0293)	0.0344 *** (2.6628)	0.0319 ** (2.0224)
Lev	0.1667 ** (2.3351)	−0.1228 (−1.0341)	0.2805 *** (2.6593)	0.2365 *** (3.1856)	0.1321 (1.2947)	0.5452 *** (4.2400)
Growth	−0.0371 * (−1.7547)	−0.0121 (−0.4236)	0.0444 (0.9945)	0.0687 ** (2.2259)	0.1601 *** (4.3484)	0.0186 (0.2421)
Roa	8.6574 *** (18.9255)	7.6033 *** (8.5242)	9.0616 *** (14.4339)	7.4030 *** (24.8750)	5.6860 *** (14.3238)	10.5444 *** (20.7205)
Cash	0.2163 * (1.8306)	−0.0435 (−0.2152)	0.4063 ** (2.2117)	−0.2793 *** (−3.2660)	−0.6038 *** (−5.5503)	−0.1099 (−0.7289)
Indep	0.6321 *** (3.7442)	−0.0195 (−0.1048)	1.0476 *** (3.3906)	0.8173 *** (4.9323)	0.9238 *** (4.2269)	0.7526 ** (2.4871)
Sep	−0.0038 *** (−3.3187)	−0.0036 ** (−2.0963)	−0.0028 (−1.5793)	0.0076 *** (6.3681)	0.0037 ** (2.4356)	0.0076 *** (3.5656)
Top1	0.0006 (0.9958)	0.0006 (0.6336)	−0.0002 (−0.2033)	−0.0064 *** (−10.1792)	−0.0072 *** (−9.1630)	−0.0051 *** (−4.4648)
Size	−0.3277 *** (−30.0984)	−0.2828 *** (−18.0450)	−0.3099 *** (−19.0987)	−0.2965 *** (−24.3311)	−0.1894 *** (−12.4431)	−0.3600 *** (−17.5825)
Constant	8.2947 *** (35.6797)	7.7508 *** (22.8876)	7.6331 *** (21.1516)	7.7012 *** (24.1880)	4.9200 *** (13.0786)	8.9894 *** (17.6160)
Year	YES	YES	YES	YES	YES	YES
Industry	YES	YES	YES	YES	YES	YES
N	9286	3675	3815	17,126	8452	5809
Adj.R ²	0.4327	0.4104	0.4571	0.3089	0.2998	0.3616

Note: *, **, *** indicate that the estimated coefficient is statistically significant at the 10 percent, 5 percent, and 1 percent levels, respectively; standard errors are clustered at the industry level and reported in parentheses below the estimated coefficients.

However, taking life cycles into consideration, the results change. As they urgently need to capturing market shares and financial support, firms in the growth phase are willing to respond to the policy call of ESG to create a relatively relaxed financial operating environment, and benefit from policy support and government resources. Hence, compared with non-state-owned firms, ESG practices in state-owned firms have a stronger positive impact on the performance of firms in the growth phase. On the one hand, with firms in the mature phase themselves already having formed a stable market share, compared with non-state-owned firms, the enthusiasm of state-owned firms to practice ESG may be slightly insufficient. On the other hand, after stepping into a relatively stable market environment, the CEOs of state-owned mature firms pay more attention to their own promotion rather than shareholders, lacking strong will to implement ESG practices since the impact of ESG on firm performance is insignificant in the sub-samples with state-owned mature firms.

Therefore, this study believes that ESG has a promoting effect on the performances of both state-owned and non-state-owned firms in the growth phase, although this effect mainly works for non-state-owned mature firms.

5.2. The Influence of Marketization Degree

External environment system such as the degree of marketization can greatly affect the economic behavior of firms. In this subsection, we conduct tests to see whether the association between ESG and firm performance varies in terms of firms in regions with different marketization degrees. The empirical results are shown in Table 12. In a context where there is a difference in the marketization process, the coefficients of ESG are 0.0286 *** and 0.0293 **, respectively. They are all significant at the 1 percent level in each tail of the sample distribution. For firms localized in regions with lower market development, slow marketization, low investor protection level and lax supervision raises investors' demand for high-quality information; thus, the disclosure of ESG helps to transmit information more comprehensively by reducing information asymmetry and improving information transparency. The higher the information transparency, the more investors believe that the development of the firm is healthy, and reduces the probability of being violated and regulated. Hence, the influence upon firm performance is higher for firms in regions with a higher market development.

Table 12. Results of the regression of the heterogeneity in marketization degree.

Variable	Low Marketization			High Marketization		
	Full Tobin's Q	Growth Tobin's Q	Mature Tobin's Q	Full Tobin's Q	Growth Tobin's Q	Mature Tobin's Q
ESG	0.0286 *** (2.9180)	0.0491 *** (3.5592)	0.0084 (0.5085)	0.0293 *** (3.3547)	0.0312 ** (2.4576)	0.0399 *** (2.7056)
Lev	0.3631 *** (4.1981)	0.1035 (0.8296)	0.5379 *** (4.2496)	0.1712 *** (2.5997)	0.0941 (0.9485)	0.4286 *** (3.8764)
Growth	0.0414 (1.3017)	0.0900 ** (2.5463)	0.0966 (1.3466)	0.0248 (0.8253)	0.1339 *** (3.2858)	−0.0349 (−0.5223)
Roa	7.9616 *** (20.2282)	6.0489 *** (10.5739)	10.5882 *** (17.7723)	7.2456 *** (23.1373)	5.7597 *** (12.6377)	9.6567 *** (18.8278)
Cash	−0.1063 (−0.9177)	−0.5385 *** (−3.5118)	−0.0351 (−0.1821)	−0.2573 *** (−3.0736)	−0.5847 *** (−4.8715)	−0.1072 (−0.7789)
Sep	0.8320 *** (4.2200)	0.5665 ** (2.2006)	1.0877 *** (3.0089)	0.4628 *** (2.9525)	0.3455 (1.6410)	0.6409 ** (2.3456)
Indep	0.0012 (0.9388)	−0.0010 (−0.6079)	0.0017 (0.8038)	0.0044 *** (4.0131)	0.0023 (1.5048)	0.0028 (1.4808)
Top1	−0.0028 *** (−4.1602)	−0.0042 *** (−4.4140)	−0.0007 (−0.6061)	−0.0040 *** (−6.7086)	−0.0049 *** (−6.2237)	−0.0047 *** (−4.4782)
Size	−0.3516 *** (−24.9596)	−0.2705 *** (−14.2353)	−0.3592 *** (−16.4797)	−0.2476 *** (−25.2005)	−0.1671 *** (−12.9082)	−0.3037 *** (−18.5132)
Constant	8.6189 *** (26.6285)	6.9954 *** (17.2362)	8.4336 *** (17.4582)	6.8942 *** (28.0796)	4.9456 *** (14.8273)	7.9354 *** (19.8394)

Table 12. Cont.

Variable	Low Marketization			High Marketization		
	Full Tobin's Q	Growth Tobin's Q	Mature Tobin's Q	Full Tobin's Q	Growth Tobin's Q	Mature Tobin's Q
Year	YES	YES	YES	YES	YES	YES
Industry	YES	YES	YES	YES	YES	YES
N	11,536	5305	4207	14,876	6822	5417
Adj.R ²	0.3640	0.3341	0.4246	0.3387	0.3293	0.3810

Note: **, *** indicate that the estimated coefficient is statistically significant at the 10 percent, 5 percent, and 1 percent levels, respectively; standard errors are clustered at the industry level and reported in parentheses below the estimated coefficients.

In the growth phase, compared to firms in regions with higher market development, the influence upon firm performance is higher for firms in regions with lower market development. The coefficients are 0.0491 *** and 0.0312 **, respectively. This is because the role played by the government in regions with a lower market development is more functional rather than service-oriented, as the mechanism favoritism via political relationships forces firms to practice ESG in order to obtain government resources and policy support. Additionally, through green transformation and development, firms will soon attract the attention of the public and establish a trust channel, which enables them to lower their cost. Therefore, firms in regions with a low marketization degree have strong motivation to seek financial support through the disclosure of ESG. In the mature phase, the findings show that the impact of ESG only becomes significant when the firm has a high marketization degree, indicating that ESG has limited explanatory power. Since the operation mode and management structure of mature firms becomes more and more perfect, and a relatively stable and extensive sales network is formed, firms begin to obtain stable profits without the pressure of endogenous financing [50]. They focus on practicing ESG to release positive signals to investors and develop a wider market share, as well as enjoy policy, technology, and financial support.

Therefore, we believe that the effect of ESG on firm performance in the growth and mature phases is asymmetric under different marketization degrees.

6. Mechanism Analysis

The report of A-share listed companies' ESG questionnaire survey from China's ESG development white paper (2021) shows that more than forty percent of respondents hold the view that the attention of institutional investors is the main driver of ESG development, and that more than eighty percent of respondents claim that ESG disclosure enhances the performance of high-quality development. Moreover, this also depends on a firm's ability to promote their risk control management after implementing their ESG strategy. Obviously, the practice of ESG depends on the promotion of external institutional investors and the improvement of internal corporate governance.

The stakeholder theory requires that listed companies should not only take the interests of internal shareholders into consideration, but also those of other external stakeholders. As important investors of listed companies, institutional investors show the significant advantages of individual investors in terms of obtaining information and using professional skills, since these are experts with strong supervision ability due to having more time and motivation to participate in corporate governance. They often focus on long-term development rather than short-term investment [51,52]. On the one hand, given that ESG has received policy support, keen institutional investors are bound to require firms to implement their social responsibility and stimulate green development transformation to meet the expectations of the public so as to raise more money; on the other hand, fulfilling social responsibilities sends out positive signals to capital markets, helping build a good image and positive reputation, and thus effectively easing financial constraints and bringing in stable capital flows. After obtaining long-term stable funding, there are more resources for firms to invest in social undertakings.

The information asymmetry theory points out that the separation of ownership and control in modern corporations creates a conflict of interest between shareholders and managers, which increases the risks of moral hazards and adverse selection, resulting in increased agency cost. Free cash flow is an important representation of the agency cost. As one of the three major decisions for firms, the investment decision plays a vital role in the promotion of firm performance, which is directly related to their overall strategy and long-term development. In non-perfect capital markets, investment is closely related to free cash flow. Richardson [53] clearly points out that the relationship between insufficient investment and the shortage of free cash flow is caused by the external financing problem resulting from adverse selection, while the relationship between excessive investment and rich free cash flow is caused by the agency cost problem resulting from moral hazard. Based on assumptions surrounding the homo economicus, prior studies have proved that management often brings non-efficient investment problems, in which rich free cash flow often causes excessive investment, while the shortage of free cash flow often aggravates under-investment [54–57]. The disclosure of ESG information requires that management reduces the agency cost of free cash flow in order to resolve the agency conflict and prevent the inefficient investment damaging the firm’s value. At the same time, the signal transmission theory emphasizes that ESG responsibility performance can help improve social attention through media reports. It is also convenient for stakeholders to supervise investments [58], coordinate conflicts of interest, and prompt firms to follow the concept of sustainable development, thus enhancing their long-term value. This study believes that ESG mainly affects the firm performance by attracting institutional investors to increase their holdings and reducing the agency cost of free cash flow.

The above results suggest that ESG is associated with an improvement in the firm’s performance, especially for firms in the growth and mature phases. Below, we provide evidence on the potential underlying mechanisms through which ESG enhances the firm’s performance. By employing the mediation effect test method proposed by Baron et al. [59] and Wen et al. [60], we focus on two types of intermediaries: institutional investors and free cash flow agency cost. To determine whether ESG attracts the above two types of intermediaries, we follow prior studies and estimate the following models:

$$\text{Medi}_{i,t} = \alpha + \beta \text{ESG}_{i,t} + \varphi \sum \text{Controls}_{i,t} + \sum \text{Year} + \sum \text{Industry} + \varepsilon_{i,t} \quad (2)$$

$$\text{Tobin's } Q_{i,t} = \alpha + \beta \text{ESG}_{i,t} + \gamma \text{Medi}_{i,t} + \varphi \sum \text{Controls}_{i,t} + \sum \text{Year} + \sum \text{Industry} + \varepsilon_{i,t} \quad (3)$$

6.1. ESG and Institutional Investors

To further examine whether ESG has a significant mediating effect on firm performance by attracting institutional investors, we run regressions in the two sub-samples partitioned based on life cycles. Table 13 displays the regression results. There is strong evidence that firms in the growth and mature phases attract more institutional investors. The coefficients are marginally significantly positive. We posit that the impact of ESG on firm performance would be mediated by institutional investors, who have long-term investment plans and play monitoring and governance roles. Consistent with our previous evidence showing that firms enjoy an improvement in their value-enhancement by practicing ESG, institutional investors mediate the relationship between ESG and firm performance in the growth and mature phases. The transmission mechanism of the “ESG–(attract) institutional investors–(enhance) value” is effective.

Table 13. Regression results of the intermediary effect of institutional investors.

Variable	Tobin's Q	Growth Hold	Tobin's Q	Tobin's Q	Mature Hold	Tobin's Q
ESG	0.0412 *** (4.4413)	0.7838 *** (4.3601)	0.0366 *** (3.9706)	0.0283 *** (2.5957)	0.6344 *** (3.4465)	0.0213 ** (1.9953)

Table 13. Cont.

Variable	Tobin's Q	Growth Hold	Tobin's Q	Tobin's Q	Mature Hold	Tobin's Q
Hold			0.0059 *** (12.8719)			0.0110 *** (17.0346)
Lev	0.0997 (1.2848)	−1.4003 (−1.0118)	0.1079 (1.4092)	0.5138 *** (6.1655)	10.8768 *** (7.9614)	0.3941 *** (4.7709)
Growth	0.1165 *** (4.3198)	1.3922 *** (3.2064)	0.1083 *** (4.0293)	0.0262 (0.5364)	−0.7027 (−1.0883)	0.0339 (0.6952)
Roa	5.8349 *** (16.4933)	6.2721 (1.2121)	5.7980 *** (16.5259)	10.1786 *** (26.0292)	39.3766 *** (8.1181)	9.7450 *** (25.4642)
Cash	−0.5492 *** (−5.8749)	12.0694 *** (6.5393)	−0.6202 *** (−6.6478)	−0.0087 (−0.0753)	7.3326 *** (4.2311)	−0.0894 (−0.7836)
Sep	0.5086 *** (3.1243)	−27.0494 *** (−8.3584)	0.6678 *** (4.1277)	0.8593 *** (3.8925)	−24.4023 *** (−6.9204)	1.1281 *** (5.1607)
Indep	0.0011 (0.9696)	0.8748 *** (40.3578)	−0.0041 *** (−3.4803)	0.0014 (1.0220)	0.6626 *** (29.9059)	−0.0059 *** (−4.0900)
Top1	−0.0046 *** (−7.7016)	0.6015 *** (45.0087)	−0.0082 *** (−12.0524)	−0.0028 *** (−3.6768)	0.6382 *** (48.3124)	−0.0098 *** (−11.1755)
Size	−0.2118 *** (−19.6654)	6.8367 *** (36.7287)	−0.2520 *** (−21.9092)	−0.3292 *** (−25.4158)	6.2036 *** (32.0504)	−0.3975 *** (−28.8470)
Constant	5.7821 *** (22.9969)	−1.3 × 10 ² *** (−27.9597)	6.5296 *** (25.0343)	8.1339 *** (26.1173)	−1.1 × 10 ² *** (−27.7191)	9.3761 *** (29.1901)
Year	YES	YES	YES	YES	YES	YES
Industry	YES	YES	YES	YES	YES	YES
N	12,127	12,127	12,127	9624	9624	9624
Adj.R ²	0.3256	0.4369	0.3354	0.3925	0.5051	0.4142

Note: **, *** indicate that the estimated coefficient is statistically significant at the 10 percent, 5 percent, and 1 percent levels, respectively; standard errors are clustered at the industry level and reported in parentheses below the estimated coefficients.

6.2. ESG and Free Cash Flow Agency Cost

As discussed previously, we predict that firms facing external financing needs are more likely to practice ESG in the hope of increasing information transparency and strengthening their multidimensional sustainable risk management through reducing free cash flow agency cost. Table 14 reveals that ESG is still able to significantly predict the dependent variable in the presence of the mediator, suggesting a partial mediating influence in one direction, which shows that, holding other factors constant, the association between ESG and firm performance is mediated by the free cash flow agency cost. The “ESG–(reduce) free cash flow agency cost–(enhance) value” transmission mechanism is effective.

Table 14. Regression results of the intermediary effect of free cash flow agency cost.

Variable	Tobin's Q	Growth Fcf	Tobin's Q	Tobin's Q	Mature Fcf	Tobin's Q
ESG	0.0412 *** (4.4413)	−0.0068 *** (−7.2546)	0.0298 *** (3.2389)	0.0283 *** (2.5957)	−0.0024 *** (−3.6253)	0.0274 ** (2.5114)
Fcf			−1.6573 *** (−18.1236)			−0.3930 * (−1.6576)
Lev	0.0997 (1.2848)	−0.1432 *** (−15.9174)	−0.1376 * (−1.7791)	0.5138 *** (6.1655)	0.0471 *** (7.7324)	0.5323 *** (6.3838)
Growth	0.1165 *** (4.3198)	−0.0037 (−1.3460)	0.1104 *** (4.1107)	0.0262 (0.5364)	0.0016 (0.4302)	0.0268 (0.5494)
Roa	5.8349 *** (16.4933)	0.4450 *** (13.4206)	6.5723 *** (18.3999)	10.1786 *** (26.0292)	0.2736 *** (12.1262)	10.2862 *** (26.0373)
Cash	−0.5492 *** (−5.8749)	0.3137 *** (22.8190)	−0.0293 (−0.3014)	−0.0087 (−0.0753)	−0.0438 *** (−8.1311)	−0.0259 (−0.2234)
Sep	0.5086 *** (3.1243)	0.0282 (1.5408)	0.5553 *** (3.4817)	0.8593 *** (3.8925)	0.0068 (0.6330)	0.8620 *** (3.9033)
Indep	0.0011 (0.9696)	0.0001 (0.5476)	0.0012 (1.0881)	0.0014 (1.0220)	0.0001 (1.5156)	0.0015 (1.0563)
Top1	−0.0046 *** (−7.7016)	0.0001 * (1.7367)	−0.0044 *** (−7.5279)	−0.0028 *** (−3.6768)	0.0000 (0.2812)	−0.0028 *** (−3.6720)

Table 14. Cont.

Variable	Tobin's Q	Growth Fcf	Tobin's Q	Tobin's Q	Mature Fcf	Tobin's Q
Size	−0.2118 *** (−19.6654)	−0.0092 *** (−9.0815)	−0.2271 *** (−21.2045)	−0.3292 *** (−25.4158)	−0.0040 *** (−5.4426)	−0.3308 *** (−25.4119)
Constant	5.7821 *** (22.9969)	0.3786 *** (14.1873)	6.4096 *** (25.5062)	8.1339 *** (26.1173)	0.1397 *** (6.9569)	8.1888 *** (26.0494)
Year	YES	YES	YES	YES	YES	YES
Industry	YES	YES	YES	YES	YES	YES
N	12,127	12,127	12,127	9624	9624	9624
Adj.R ²	0.3256	0.3344	0.3501	0.3925	0.0761	0.3927

Note: *, **, *** indicate that the estimated coefficient is statistically significant at the 10 percent, 5 percent, and 1 percent levels, respectively; standard errors are clustered at the industry level and reported in parentheses below the estimated coefficients.

7. Conclusions and Implications

7.1. Discussion and Conclusions

This article is concerned with advancing our understanding of the effects of profit-seeking firms undertaking ESG activities by consolidating and reviewing an analysis of the ESG–firm performance relationship. Our findings are generally supportive of previous research [37–40]. Additionally, in contrast with solely focusing on firm heterogeneity, we incorporate the life cycle into all stages of our research, including their dynamic stages of development.

This study investigated the value-enhancing effect of ESG by incorporating the firm's life cycle. We examined a potential benefit associated with ESG activities: an improvement in firm performance. We found that firms performing ESG practices enjoy an increased valuation effect in terms of their performance, consistent with the findings of prior studies [37–40]. These findings, thus, lend support to the information asymmetry and signal transmission theories and suggest that ESG has significant effects on firm performance. Taking life cycle stages into account, this study selected the perspective of the dynamic characteristics of a firm's life cycle to further verify that firms' performances are affected by their ESG performances. In the growth phase, due to their lack of reputational capital, firms may engage in ESG activities so as to improve their competitiveness, alleviate financial constraints, and create value for firms. In the mature phase, with a business strategy shifting from “survival” to “development”, the willingness to take up ESG is significantly increased since good development prospects and market reputation make it easy for mature firms to obtain higher exogenous credit funds at lower costs. In the decline phase, where firms face the early warnings of deteriorating financial conditions, increased operational risks, and continuous losses, firms need to obtain exogenous funds through ESG to demonstrate a sustainable corporate image to the government and consumers in order to reduce their financial costs. However, the short-term costs of adopting ESG typically outweigh the immediate financial benefits. Firms may not thrive well later by acting well now. Hence, ESG positively affects a firm's performance, particularly in the growth and mature phases of the life cycle. Further heterogeneity analysis results show that the marketization process and ownership structure also affect the effect of ESG on firm performance. State-owned firms in the growth phase localized in regions with a lower marketization degree can maximize the valuation effect. Finally, ESG responsibility mainly affects firms' performances by attracting external institutional investors to increase their holdings and internally reduce the agency cost of their free cash flow.

7.2. Implications

From “Speeding up the transformation of the mode of economic development”, to “Implementing the new development concept”, and then to “Promoting the development of high quality”, the outline of China's economic development model is gradually becoming clear, and the call of green economic transformation has been heard. As an effective way to deploy and achieve the “double-carbon” strategy, providing important support

for achieving the “3060” goal, the importance of ESG is self-evident. However, when and how firms can best implement their “ESG gene” to maximize its utility remains unknown. Based on the above research, the following policy suggestions are put forward: although ESG practice has increasingly emerged, the Chinese capital market is not perfect and the institutional environment lags behind, whilst the drive of firms to practice ESG is slightly insufficient. Although the academic community has provided theoretical support for relevant studies, the existing research field still needs to be expanded. On the one hand, the study of the improvement of the ESG information disclosure framework and unified disclosure standards need to reach the relevant institutions in order to accelerate the implementation of the corresponding policies, refine the quantitative criteria for the key indicators, and provide normative guidance and clear boundaries for information disclosure. It is particularly urgent to explore the form of a localized “ESG Chinese standard”. On the other hand, when digital transformation meets ESG practice, it is of great importance to study how to use data in a responsible manner and avoid algorithmic discrimination based on artificial intelligence, machine learning, etc. ESG practice embedded in digital responsibility and the linkage mechanism with a firm’s value need to be further explored and analyzed in later research. In practice, this study contends that the relationship between ESG and a firm’s performance varies across life cycle stages, which means that, on the one hand, policy should not be applied across the board, but should be tailored to the specific conditions of different firms; on the other hand, when practicing ESG, firms also need to assess the situation according to their local conditions without blindly pursuing ESG practices in order to avoid “greenwashing”. Additionally, although it is undeniable that ESG is in the limelight in China, it is more of a risk measurement strategy in the field of investment rather than an evaluation of corporate social influence. The cognition and practice of ESG need to be dynamically adjusted with the improvement in ESG information disclosure guidelines and frameworks in the future. We should give full play to the regulatory effect of external investors, especially institutional investors, to form a joint force in combination with internal corporate governance, optimize the information disclosure environment of the capital market, and promote the transformation into a green economy and high-quality development driven by ESG. Moreover, as European countries have started to implement mandatory ESG disclosure, this article may provide some support for future international comparisons of ESG information disclosure, viewing ESG activity as part of the broader bundle of firm activity [61] and allowing a cross-country analysis that would highlight similarities and differences.

Based on the life cycle theory, this paper examines the impact of ESG on firm performance and further analyzes the heterogeneous results under different corporate characteristics; however, there are still limitations. First, the exploration of the relationship between different dimensions of ESG was not involved. Since ESG is complex and covers a wide range of activities, the use of a single measure for ESG may lead to omitted variable bias in predicting the firm performance. Future improvements are to be expected. Second, ESG disclosures vary widely in quality and lack comparability, regardless of whether associations between disclosure and firm outcomes are related to disclosure characteristics [10], such as whether voluntary disclosure brings more valuable performances; this may be discussed in greater detail in the future.

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