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Managerial Myopia and Enterprise ESG Performance -- Based on the Co-Inhibiting Effect of Green Investment and Continuous Innovation

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Abstract: Under the new pattern of "double carbon" development, good ESG performance is the best way to promote the sustainable development of enterprises, and the ESG investment strategies are directly affected by the strategic vision of managers. Based on the upper echelons theory and stakeholder theory, this paper takes Chinese A-share listed companies from 2011 to 2022 as samples to empirically analyze the impact of managerial myopia on corporate ESG performance. The results show that managerial myopia significantly inhibits corporate ESG performance, mainly by inhibiting corporate green investment and green innovation sustainability. Furthermore, for state-owned enterprises (SOE), heavy polluting enterprises (HPE) and non-high-tech enterprises, the inhibitory effect of manager myopia on ESG performance is stronger. When the enterprise is in the growth stage, the above inhibition effect is more severe. For external governance, the greater the analyst attention and public environmental attention are, the more conducive they are to alleviating the restraining effect of managerial myopia on enterprise ESG performance. Therefore, effectively improving the time cognition level of managers and strengthening external supervision have become important measures for comprehensively optimizing the ESG performance.

Keywords: Managerial myopia; ESG performance; Green investment; Green sustainable innovation

1. Introduction

In recent years, social issues related to sustainable development, such as climate change, public health security and wealth disparity, have become existential and developmental crises faced by all mankind. The demand for social responsibility through sustainable development is also reshaping the development concept of all countries. At the first Sustainable Development Forum, General Secretary Xi Jinping stressed that China upholds the concept of sustainable development and fully implements the Sustainable Development Agenda to promote high-quality economic development. The 20th National Congress report noted that respecting, conforming to and protecting nature are the internal requirements for comprehensively building a modern socialist country. To promote green development, we must stand at the apex of the harmonious coexistence between man and nature. To achieve this development philosophy, the integration of environment (E), social (S) and governance (G) into the investment decision-making framework is not only an important path for the sustainable development of micro-enterprises, but also an inevitable choice for low-carbon economic transformation and high-quality development. Such ESG performance is the main standard for measuring the level of green and sustainable development by enterprises in the international community. In 2022, the listing rules of the Shanghai Stock Exchange clearly stipulated that listed companies should actively practice the concept of sustainable development. The ESG investment concept is strongly aligned with the needs of high-quality economic development and the spirit of the 20th Report, which is bound to receive considerable, continuous attention from the academic and

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practical circles. By the end of 2022, more than 5,300 institutions had signed the United Nations Principles for Responsible Investment (UNPRI), and the assets under the management of signatories exceeded $120 trillion[1].Although ESG investment started late in China, its rapid growth in scale and quantity has attracted the world's attention. In 2022, China's ESG fund management scale had reached 434.634 billion yuan[2].

According to neoclassical theory, ESG performance is contrary to traditional value creation because its negative externalities may inhibit the realization of shareholder value maximization and the operational efficiency of enterprises (Jensen, 2002; Benabou & Tirole, 2010)[1,2]. However, in recent years, numerous studies have found that good ESG performance not only helps enterprises win the trust of the public, financial institutions and suppliers but also helps enterprises reduce their operating costs, mitigate their financial risks, stimulate their innovation momentum, and thus improve their operating efficiency and long-term value (Ghoul et al., 2018; Anwar et al., 2020; Broadstock et al., 2021; Houston et al., 2022)[3–6]. The reality, however, is less than satisfactory. According to the Wind ESG rating data, only 35 (less than 1%) A-share listed companies had ESG ratings above AA in the four quarters of 2022, and approximately 65% of enterprises had ESG rating levels of BB or below for the whole year, which means that there is considerable room for future improvement. Therefore, it is particularly important to explore which factors help improve ESG performance. The literature focuses on the direct and indirect economic effects of good ESG performance, but the analysis of factors that improve ESG performance is relatively fragmented and unsystematic. Scholars have focused mainly on external macro factors such as environmental regulation measures(Chen et al., 2022; Qi et al., 2022; Oren et al., 2022; Shu et al., 2023) [7–10], environmental uncertainty (Maha et al., 2023)[11] and the openness of the capital market (Deng et al., 2022)[12]; corporate decision-making behaviors, such as digitalization level, green technology innovation and mergers and acquisitions (M&A) (Fang et al., 2023; Zheng et al., 2022; Victor et al., 2022)[13–15]; and corporate governance characteristics, such as equity structure, board characteristics and equity pledges (Wang et al., 2023; Elisa et al., 2022; Jang et al., 2022)[16–18]. However, managers are at the helm of corporate strategy and make the decisions regarding the allocation of corporate resources. According to upper echelons theory, managerial ability greatly affects decision making and is thus bound to affect the prospect of sustainable development. The literature has only confirmed that high-ability managers will focus on ESG projects that create value for shareholders (Welch et al., 2023)[19]. In contrast, research on the impact of managers' multidimensional attributes, especially managers' short-termism, on corporate ESG performance needs to be supplemented. According to upper echelon theory, the characteristics of managers' cognition of time determine the long-term decision-making behavior of enterprises (Chen et al., 2016; Hu et al., 2021)[20,21]. Therefore, how does managerial myopia affect ESG performance? What is the transmission mechanism? Furthermore, what are the differences between managerial myopia and ESG performance in terms of the nature of the firm, the concerns of external investors and the public, and the stage of the life cycle? This paper aims to answer these questions.

Based on upper echelons theory and stakeholder theory, this paper found that managerial myopia significantly inhibited the ESG performance of enterprises. After a series of robustness tests, the conclusion remained valid. Managerial myopia significantly inhibits corporate environmental and social responsibility, but it helps improve the level of corporate internal governance. Managerial myopia restrains the improvement of enterprise ESG performance by inhibiting enterprise green investment and green innovation sustainability. For state-owned enterprises (SOEs), heavily polluting enterprises (HPEs), non-high-tech enterprises, and enterprises in the growth period, the inhibitory effect of managerial myopia on ESG performance is stronger. In terms of external governance, greater analyst attention and public environmental concern (PEC) are conducive to reducing the inhibitory effect of managers' shortsightedness on ESG performance.

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[1] Data source：Bloomberg Intelligence

[2] Data source：Wind Information

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The main contributions of this paper are as follows. (1) This paper contributes to the understanding of the economic effects of managerial myopia. Most previous studies have focused on the impact of managerial myopia on corporate performance and long-term investment. This paper innovatively integrates the temporal cognitive attributes of managerial myopia and the environment, social responsibility and corporate governance of microenterprises into a unified research framework. This finding also confirms that managerial myopia can inhibit corporate environmental and social responsibility performance. Due to the limitations of managers' time cognition, enterprises pay more attention to internal governance. (2) This paper broadens the influence mechanism of enterprise ESG performance. Numerous studies have explored many factors affecting enterprises' ESG performance from the perspectives of the macroeconomic environment, industrial policy and microenterprises. However, this paper focuses on the cognitive attributes of managerial myopia and verifies that managerial myopia leads to insufficient green investment and weak sustainability of green innovation, which eventually inhibits ESG performance. This study provides a new research perspective and evidence for the impact of managers' personal attributes on ESG performance. (3) This paper provides actionable governance solutions to prevent managerial myopia from affecting ESG performance. By clarifying the influence of managerial myopia on ESG performance, we further find that the inhibitory effect is stronger for SOE, HPE, and non-high-tech enterprises as well as enterprises in the growth stage. For external governance, the greater the analyst attention and PEC are, the more conducive they are to alleviating the inhibiting effect.

2. Literature Review

2.1. ESG Performance

2.1.1. The Induction Effect of ESG Performance

According to the theory of stakeholders and information asymmetry, good ESG performance can help enterprises gain the trust of financial institutions, suppliers and customers and the attention of external people such as institutional investors and analysts and further influence the financial performance, financial risk and technological innovation of enterprises. On the one hand, from the perspective of corporate economic interests, good ESG performance and information disclosure quality can more easily support financial institutions and alleviate corporate financing constraints (Houston et al., 2022; Christensen et al., 2022)[6,22]. On the other hand, these elements also help establish close contact with stakeholders, effectively reduce the financial, information and agency risks of enterprises (Broadstock et al., 2021; Shakil et al., 2021; Li et al., 2022)[5,23,24], and thus reduce the cost of corporate debt financing(Eliwa et al., 2019)[25].

However, there remains no consensus on the impact of ESG performance on firm performance and value. Improvement in ESG performance can send a positive signal to the market, which is conducive to improving enterprise operational efficiency (Aouadi et al., 2018; Anwar et al., 2020)[4,26]. However, corporate executives may consume excessive resources to invest in high-input areas such as the environment and social responsibility, so good ESG performance will not be conducive to improving corporate value(Duque-Grisales et al., 2021; Garcia et al., 2020)[27,28]. From the perspective of enterprise innovation, stakeholder theory holds that the importance of ESG performance indicates that enterprises can effectively balance economic interests and social interests. Such balance is conducive to the comprehensive integration and allocation of enterprise relationship networks and resources and thus enhances innovation momentum and level (Donaldson et al., 1995; Wang et al., 2022)[29,30]. Moreover, ESG performance can improve innovation ability and quality by easing enterprise financing constraints and improving employees' innovation efficiency and the level of enterprise risk sharing (Fang et al., 2023)[31]. However, standardized supervision of ESG information disclosure is lacking. "Greenwashing" is a common way to whitewash environmental and social responsibilities. The externality of ESG performance further intensifies agency contradictions, exacerbates stock price volatility and even causes crashes (Capelle-Blancard et al., 2019; Feng et al., 2022)[32,33].

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2.1.2. Factors Influencing ESG Performance

Existing studies have analyzed the factors affecting ESG performance from different perspectives, such as the external macro environment and micro corporate governance. At the macro level, environmental uncertainty will reduce the degree of trust for enterprises, accelerate the outflow of enterprise investment, and lead to poor overall ESG performance (Wang et al., 2023)[34]. When external economic policy uncertainty or political uncertainty increases, companies also increase their environmental and social responsibility investment to improve their ESG performance due to risk aversion (Borghesi et al., 2019; Maha et al., 2023)[11,35]. Mandatory environmental rules and environmental regulation measures such as environmental protection laws, environmental protection tax laws, carbon emission trading markets and the UNPRI can effectively improve ESG performance (Lu et al., 2022; Wang et al., 2022; Su et al., 2023; Wang et al., 2024)[36–39]. At the micro level, internal characteristics such as corporate characteristics, board characteristics and equity pledges will affect ESG performance (Drempetic et al., 2020; Elisa et al., 2022; Jang et al., 2022)[17,18,40]. The more concentrated the ownership of external institutional investors is, the better the ESG performance (Wang et al., 2023)[41]. Managers have certain decision-making power regarding environmental protection and social responsibility. The literature has confirmed that the competence, femininity and green investment experience of senior executives can effectively improve ESG performance (Welch et al., 2022; Yan et al., 2024; Deng et al., 2024)[19,42,43].

2.2. Managerial Myopia

As leaders in strategic decision making, the short-termism of time cognition has an important impact on enterprises (Narayanan, 1985)[44]. Managers' shortsighted decision-making is the behavior of acquiring current vested interests at the expense of long-term development opportunities (Bushee, 1998)[45], which will have a long-term negative effect on stakeholders. Previous studies have shown that personal self-interest, lack of decision-making ability and capital market pressure are important factors that cause managerial myopia (Chen et al., 2015; Garel, 2017)[46,47]. In recent years, the academic community has begun to pay attention to the economic inhibition effect of managerial myopia. Myopic managers are more inclined to invest in projects with short horizons and high returns (Holmstrom, 1999)[48] and thus to abandon long-term investment projects with uncertain R&D or output (Hu et al., 2021)[21]. Moreover, shortsighted managers actively participate in short-term earnings management at the expense of total factor productivity (Sheng et al., 2022)[49].

3. Mechanism Analysis and Research Hypothesis

3.1. Managerial Myopia and ESG

Traditional management incentives prioritize shareholder value maximization, so market capitalization management becomes an important strategic decision for management. The market value of a business depends more on short-term than on long-term expected earnings (Miles, 1993)[50]. The active participation of enterprises in ESG investment is bound to affect short-term goals such as short-term profitability and inherent market share (Garel, 2017)[47]. Stakeholders also agree that ESG investment will be carried out at the expense of shareholder value (Welch et al., 2023)[19]. Therefore, the integration of ESG strategies by management largely depends on the trade-off between short- and long-term goals.

The positive externalities of ESG projects result in greater social benefits than business income. When companies bear all the costs of ESG investments but cannot capture all the benefits, they lack fundamental incentives to improve ESG performance. In addition, because of their inherent risk aversion and focus on short-term goals, myopic managers will view current profit and market value management as the purpose of enterprise strategic decisions. Such "short-term strategic goals" will lead to the abandonment of projects with long payback periods and high cost–benefit ratios (Habib et al., 2023; Cao et al., 2024)[51,52]. Moreover, the appointment of managers in Chinese state-owned enterprises has its own unique political attribute based on managers' political connections rather than

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their strategic vision. Furthermore, supervisor attention to the manager's tenure assessment can somewhat aggravate the manager's shortsighted behavior. Managers pay too much attention to short-term interests, thus ignoring or temporarily relinquishing long-term sustainable development and social responsibility, which violates stakeholder theory.

Hypothesis 1. *Managerial myopia inhibits ESG performance*.

3.2. Green Investment Inhibition Effect

Managerial myopia will reduce managers' ability to perceive the external environment and identify potential opportunities and risks, which will inhibit long-term investment and corporate performance, increase operational risks, and block sustainable development (Hu et al., 2021; Chen et al., 2024)[21,53]. When managerial tenure is shorter than the payback period of a long-term investment project, managers are bound to ignore the long-term investment project and focus more on maximizing short-term profits (Schuster et al., 2018)[54].

Specifically, managers' lack of decision-making ability is the internal driving factor of managerial myopia, and self-interest is the external environmental driving factor, neither of which are conducive to long-term enterprise development. Managerial myopia directly affects enterprise investment behavior and resource allocation decisions. Green investment is an important strategic decision for sustainable enterprise development. Its characteristics of a low investment income ratio and long investment payback period are contrary to the shortsighted behavior of pursuing the maximization of short-term shareholder interests. Specifically, managers with poor decision-making ability are more likely to ignore long-term sustainability goals and tend to favor short-term projects with short payback periods and high investment margins (Habib et al., 2023)[51]. Managers with a serious tendency toward selfishness are more likely to ignore long-term enterprise growth and tend to invest in projects with low opportunity costs and high short-term personal interests, such as increasing short-term financial asset allocation and maximizing the interests of short-term investors and managers (Yu et al., 2022)[55]. In the long run, this approach leads to a serious lack of green investment.

Hypothesis 2. *Managerial myopia affects ESG performance by discouraging green investment*.

3.3. Inhibiting Effect of Green Innovation

Against the background of "double carbon" development, green innovation is an important decision for sustainable enterprise development, but it has the significant characteristics of high research and development costs, long payback periods and high investment risk (Holmstrom et al., 1989)[56]. Although managers have the decision-making power to implement green innovation strategy, not all of them have the long-term vision for intrepid green innovation. In theory, myopic managerial behavior is not conducive to the sustainable development of green innovation.

Specifically, on the one hand, managers with insufficient decision-making ability are more inclined to sacrifice long-term strategies, reduce investment in fixed assets such as green infrastructure construction, and reduce investment in green innovation R&D expenses to maximize short-term returns. In addition, the high degree of uncertainty in green innovation projects exacerbates the shortsighted behavior of managers with short tenure. On the other hand, managers with a serious tendency toward selfishness tend to take market value management as their own responsibility, adopt shortsighted and opportunistic decisions (Chintrakarn et al., 2016)[57], and reduce capital expenditures on green innovation. Equity incentive mechanisms and institutional investors can effectively supervise and restrain managers' shortsighted behaviors, which will alleviate the inhibiting effect of managerial myopia on green innovation (Liu et al., 2022)[58]. However, with the deepening of the global ESG investment concept, enterprises must continue to carry out green innovation. Due to their self-interest, shortsighted managers tend to temporarily increase their investment in green innovation to meet the requirements of ESG information disclosure, but it is difficult to guarantee the sustainability of green innovation.

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Hypothesis 3. *Managerial myopia affects ESG performance by inhibiting green innovation sustainability*.

4. Research Design

4.1. Sample Selection and Data Sources

This paper selects a sample of all A-share listed companies from 2011 to 2022. To ensure the reliability of the empirical results, we eliminate listed companies with ST, *ST, missing relevant variables, financial insurance, and durations as listed companies of less than 3 years. This paper ultimately selected 26,223 effective observations from 2991 listed companies. The financial data and annual reports of the listed companies selected in this paper are from the CSMAR. The financial report documents are from the Giant Tide information network, which was used to extract word frequency in the management discussion and analysis (MD&A) that reflects managerial myopia. To avoid bias in the regression caused by extreme values, all continuous variables were tailed 1% up and down.

4.2. Variable Selection

4.2.1. Managerial Myopia

Early managers' short-termism has been measured mainly by a questionnaire survey, but this approach is not widely used due to respondents' subjective cognitive bias (Wang T. et al., 2012)[59]. Some scholars have also used variables such as the R&D reduction level (Chen T. et al., 2015)[46] and R&D cost relative to the cost reduction rate (Schuster et al., 2020)[60] as proxies for managerial myopia, but these variables often have a lag and are insufficient to demonstrate managers' cognitive behavior over time. However, social psychology research has shown that managers' individual personality traits can be expressed through language. Therefore, this paper refers to the research of Hu et al. (2021), which conducted text analysis based on the MD&A disclosed in the annual reports of listed companies and determined 43 myopic word sets. The word frequency and proportion of the myopic word set in the total MD&A word frequency is used as the measurement index of managerial myopia to interpret the deviation of managers' cognition of time. The greater the index value is, the more serious the managers' shortsighted behavior.

4.2.2. ESG Performance

At present, China's ESG rating agencies for listed companies primarily include Huazheng, SynTao Green Finance, Wind and CASVI, but the results of various rating agencies are significantly different. Specifically, the rating coverage of SynTao Green Finance and CASVI is narrow, and the update frequency is low. Although Wind focuses on financial perspective ratings, it only dates to 2017. In contrast, China Securities ESG ratings cover all A-shares and are updated quarterly. The comprehensiveness of the index is reflected by covering three primary indicators of environmental, social and corporate governance, 14 secondary indicators, 26 tertiary indicators and 130 underlying data indicators, which ultimately results in C~AAA9 grades (from lowest to highest). The Huazheng ESG evaluation index system does not use the measurement indicators related to managerial myopia as an evaluation benchmark, which can help avoid endogeneity. Based on Fang et al.'s research, this paper assigned C-AAA grades to values ranging from 1 to 9 and measured the annual ESG performance of listed companies after averaging the quarterly data.

4.2.3. Mechanism Variable

Green investment: Most of the variables selected for green investment in the literature involve environmental protection investment or environmental investment. For example, the investment expenditures of projects in the fields of pollution prevention, green production or ecological environment governance in construction projects in the annual reports of listed companies are collected manually. Although this method is suitable for HPE, its scope of application is narrow

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(Zhang et al., 2019)[61]. Wang Hui et al. (2022) matched the "Fund subject Information Table" with the "Stock investment table" and manually screened for the main frequency words related to the environment, such as "environmental protection", "green", "ecological" and "new energy", in the investment target and scope. A green investor in the enterprise was indicated by 1; otherwise, it was 0. He further counted the current number of green investors in each company [62]. This index measures the green investment behavior of enterprises from the perspective of external investment. In general, the greater the actual green investment is, the better the investment efficiency, and the more external green institutional investors will be attracted.

Sustainability of green innovation: Learning from the practice of He Yubing et al. (2017)[63], this paper uses the sequential growth rate of green innovation input and output multiplied by the scale of green innovation input and output in the current period to measure innovation sustainability.

4.2.4. Control Variables

Since many factors affect ESG performance, this paper refers to existing research in employing control variables that include enterprise-level variables (enterprise size, enterprise age, profitability, enterprise liquidity, nature of property rights, dual, management shareholding, equity balance degree, proportion of independent directors, internal control quality, equity concentration, institutional shareholding ratio) and other characteristics (such as investor attention), as shown in Table 1.

Table 1. Variable definitions.

Variable	Symbol	Variable name	Definition
Dependent variable	ESG	ESG performance	Huazheng ESG rating. Quarterly data is assigned a value ranging from 1 to 9, and the annual mean is logarithmic.
	E	Environment	The subscore of E in the ESG rating.
	S	Social responsibility	The subscore of S in the ESG rating.
	G	Governance	The subscore of G in the ESG rating.
Explanatory variable	Myopia	Managerial myopia	Proportion of the total word frequency of 43 "short-term horizon" words in the total word frequency of MD&A.
Mechanism variable	Ginvest	Green investment	Log of the number of green investors plus 1.
	Ginnova	Sustainability of green innovation	The sequential growth rate of green innovation output multiplied by the current innovation output size.
Control variables	Size	Enterprise size	Logarithm of total assets at the end of the year.
	Age	Enterprise age	The logarithm of the number of years the firm has been listed.
	ROA	Profitability	Return on total assets = net profit/total assets.
	Cashratio	Enterprise liquidity	The proportion of cash to total assets.
	SOE	Nature of property rights	Dummy variable: SOE value is 1, otherwise 0.
	Dual	Dual	The chairperson concurrently serving as the general manager is indicated by 1, otherwise 0.
	Mhold	Management shareholding	The ratio of management ownership to total equity.
	Balance	Equity balance degree	The proportion of the number of shares held by the second- to fifth-largest shareholders and the largest shareholder.
	Indboard	Proportion of independent directors	The ratio of the number of independent directors to the total number of directors.
	ICQ	Internal control quality	Logarithm of the Shenzhen Dibo internal control index.
	TOP1	Equity concentration	Shareholding ratio of the largest shareholder.

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	Organ	Institutional shareholding ratio	The proportion of institutional holdings in total equity.
	Baidumed	Investor attention	The median of the Baidu index that investors pay attention to.
Other variables		Year	Time dummy variable
		Industry	Industry dummy variable (with reference to the industry standard issued by the China Securities Regulatory Commission [CSRC] in 2012, the manufacturing industry uses a second-level classification, and all others use a first-level classification).

4.3. Descriptive Statistics

Table 2 presents descriptive statistics for all variables. The maximum standard deviation of all variables is 1.903, indicating that all variables are within the normal range.

Table 2. Descriptive statistics of variables.

Variables	(1) N	(2) Mean	(3) Sd	(4) Min	(5) Max
ESG	26,223	6.528	1.139	1	9
E	26,223	2.916	1.164	1	9
S	26,223	5.371	1.903	1	9
G	26,223	6.354	1.336	1	9
Myopia	26,223	0.0847	0.0771	0	0.855
Ginvest	26,223	0.556	0.775	0	4.220
Ginnova	26,223	0.417	0.862	0	7.062
Size	26,223	22.27	1.325	17.81	28.50
Age	26,223	2.331	0.707	0.693	3.497
ROA	26,223	0.0364	0.0749	-2.120	0.786
Cashratio	26,223	0.195	0.139	0.0012	0.980
SOE	26,223	0.369	0.482	0	1
Dual	26,223	0.267	0.442	0	1
Mhold	26,223	0.127	0.193	0	0.897
Balance	26,223	0.728	0.622	0	4
Indboard	26,223	0.379	0.0666	0.143	0.800
ICQ	26,223	6.473	0.167	2.194	11.07
TOP1	26,223	0.346	0.150	0.0029	0.900
Organ	26,223	0.395	0.239	0	3.267
Baidumed	26,223	6.700	0.728	4.043	10.81

4.4. Model Setting

4.4.1. Benchmark Regression Model

$$ESG_{i,t} = \alpha_0 + \alpha_1 Myopia_{i,t} + \alpha_2 Controls_{i,t} + \sum Year + \sum Industry + \varepsilon_{i,t} \quad (1)$$

To verify Hypothesis 1, this paper constructs a benchmark regression model for managerial myopia and ESG performance, as shown in Equation (1), where the parameter α_1 reflects the total effect of managerial myopia on ESG performance. If α_1 is significantly negative, an inhibitory effect is present. $\sum Year$ represents the time fixed effect, $\sum Industry$ represents the industry fixed effect, and $Controls_{i,t}$ is the control variable.

4.4.2. Mechanism Regression Model

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To test Hypotheses 2 and 3, this paper constructs a two-stage model to explore the two transmission paths through which managerial myopia restrains ESG performance, that is, by hindering green investment and by inhibiting the sustainability of enterprise green innovation. The model settings are as follows.

$$Ginvest_{i,t} = \beta_0 + \beta_1 Myopia_{i,t} + \beta_2 Controls_{i,t} + \sum Year + \sum Industry + \varepsilon_{i,t} \quad (2)$$

$$ESG_{i,t} = \sigma_0 + \sigma_1 Ginvest_{i,t} + \sigma_2 Myopia_{i,t} + \sigma_3 Controls_{i,t} + \sum Year + \sum Industry + \varepsilon_{i,t} \quad (3)$$

$$Ginnova_{i,t} = \theta_0 + \theta_1 Myopia_{i,t} + \theta_2 Controls_{i,t} + \sum Year + \sum Industry + \varepsilon_{i,t} \quad (4)$$

$$ESG_{i,t} = \eta_0 + \eta_1 Ginnova_{i,t} + \eta_2 Myopia_{i,t} + \eta_3 Controls_{i,t} + \sum Year + \sum Industry + \varepsilon_{i,t} \quad (5)$$

Equations (2) and (4) reflect the impact of managerial myopia on green investment and the sustainability of green innovation. The parameters β_1 and θ_1 are significantly negative, indicating that there is a suppressive effect. $\beta_1 \times \sigma_1$ and $\theta_1 \times \eta_1$ represent the indirect inhibitory effect of managerial myopia on ESG performance through mechanism variables. Equations (3) and (5) reflect the impact of green investment and green innovation persistence on ESG performance. Parameters σ_1 and η_1 are significantly positive, indicating that green investment and green innovation sustainability can effectively improve ESG performance.

5. Empirical Results and Analysis

5.1. Correlation Analysis

Table 3 shows the correlation coefficients of all the variables. There is a significant negative correlation between managerial myopia and ESG performance and a significant positive correlation between green investment (green innovation sustainability) and ESG performance. This finding is basically consistent with the three hypotheses.

Table 3. Correlation coefficients of variables.

	ESG	Myopia	Ginvest	Ginnova	Size	Age	ROA	Cashratio	SOE
ESG	1								
Myopia	-0.017***	1							
Ginvest	0.180***	-0.092***	1						
Ginnova	0.089***	-0.069***	0.227***	1					
Size	0.327***	0.031***	0.356***	0.233***	1				
Age	0.169***	0.150***	0.007	-0.006	0.439***	1			
ROA	0.134***	-0.054***	0.246***	0.027***	0.013**	-0.145***	1		
Cashratio	0.020***	-0.097***	0.030***	-0.002	-0.234***	-0.248***	0.215***	1	

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SOE	0.246***	0.163***	-0.002	0.037***	0.342***	0.448***	-0.052***	-0.118***	1
Dual	-0.092***	-0.097***	0.012**	-0.006	-0.177***	-0.238***	0.026***	0.097***	-0.297***
Mhold	-0.128***	-0.159***	0.008	-0.011*	-0.347***	-0.579***	0.121***	0.202***	-0.477***
Balance	-0.078***	-0.092***	0.032***	0.018***	-0.094***	-0.167***	-0.024***	0.056***	-0.263***
Indboard	-0.012**	-0.030***	0.031***	0.011*	-0.023***	-0.067***	0.009	0.012*	-0.098***
ICQ	0.247***	-0.038***	0.189***	0.066***	0.121***	-0.093***	0.289***	0.070***	0.039***
TOP1	0.127***	0.048***	0.008	-0.001	0.189***	-0.060***	0.124***	0.027***	0.234***
Organ	0.245***	0.070***	0.245***	0.075***	0.451***	0.375***	0.080***	-0.072***	0.391***
Baidumed	0.222***	0.083***	0.309***	0.170***	0.471***	0.323***	0.028***	-0.099***	0.211***

	Dual	**Mhold**	**Balance**	**Indboard**	**ICQ**	**TOP1**	**Organ**	**Baidumed**
Dual	1							
Mhold	0.252***	1						
Balance	0.060***	0.239***	1					
Indboard	0.118***	0.106***	-0.012**	1				
ICQ	-0.003	0.046***	-0.049***	0.028***	1			
TOP1	-0.052***	-0.106***	-0.681***	0.025***	0.118***	1		
Organ	-0.193***	-0.514***	-0.190***	-0.068***	0.107***	0.380***	1	
Baidumed	-0.101***	-0.257***	-0.108***	0.012**	0.080***	-0.002	0.199***	1

Note：*** p<0.01, ** p<0.05, * p<0.1.

5.2. Benchmark Regression

First, Hypothesis H1 is verified to examine the impact of managerial myopia on ESG performance, as shown in Table 4. Without the addition of control variables and various fixed effects, the results in Column (1) show that the regression coefficients of managerial myopia on ESG performance are significant at the 1% confidence level. When fixing time, industry, and province

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effects and clustering for enterprises, the results in Column (2) show that the regression coefficients are significantly enhanced. After adding control variables and gradually controlling for the fixed effects of time-time and industry-time, industry and province, the regression results in Columns (3)-(6) are still significant. The results in Column (6) show that the regression coefficient at a confidence level of less than 5% is significantly negative, indicating that for every 1% reduction in managerial myopia, ESG performance will improve by 0.045%. Therefore, Hypothesis H1 is confirmed, and the regression results of the control variables are basically in line with expectations.

Table 4. Baseline regression results.

Variables	(1) ESG	(2) ESG	(3) ESG	(4) ESG	(5) ESG	(6) ESG
Myopia	-0.052***	-0.086***	-0.024*	-0.041***	-0.041***	-0.040**
	(-3.72)	(-4.41)	(-1.77)	(-2.86)	(-2.83)	(-2.16)
Size			0.027***	0.028***	0.029***	0.029***
			(17.87)	(12.69)	(12.87)	(8.47)
Age			-0.007**	-0.014**	-0.014**	-0.013*
			(-2.52)	(-2.48)	(-2.55)	(-1.68)
ROA			0.107***	0.071***	0.067***	0.068**
			(5.77)	(3.74)	(3.55)	(2.29)
Cashratio			0.038***	0.021**	0.022**	0.023*
			(4.42)	(2.24)	(2.33)	(1.77)
SOE			0.045***	-0.004	-0.003	-0.003
			(11.27)	(-0.69)	(-0.47)	(-0.37)
Dual			-0.006**	-0.005*	-0.005*	-0.005
			(-2.18)	(-1.84)	(-1.82)	(-1.27)
Mhold			0.097***	0.150***	0.149***	0.149***
			(10.01)	(12.10)	(12.01)	(7.90)
Balance			-0.004	-0.012***	-0.011***	-0.011*
			(-1.25)	(-3.04)	(-2.99)	(-1.94)
Indboard			-0.018	-0.022	-0.021	-0.022
			(-1.10)	(-1.32)	(-1.25)	(-1.08)
ICQ			0.186***	0.167***	0.166***	0.165***
			(27.19)	(23.88)	(23.68)	(15.26)
TOP1			0.048***	-0.017	-0.015	-0.014
			(3.17)	(-0.88)	(-0.78)	(-0.46)
Organ			0.057***	0.039***	0.040***	0.039***
			(9.68)	(6.27)	(6.29)	(4.94)
Baidumed			0.014***	-0.018***	-0.018***	-0.018***
			(7.04)	(-5.98)	(-6.00)	(-4.64)
Constant	1.858***	1.823***	-0.091*	0.277***	0.247***	0.207
	(661.85)	(19.70)	(-1.71)	(4.30)	(3.41)	(1.52)
Year	NO	YES	NO	YES	YES	YES
Industry	NO	YES	NO	NO	YES	YES
Province	NO	YES	NO	NO	NO	YES
Cluster by Firm	NO	YES	NO	NO	NO	YES
Observations	26,223	26,223	26,223	26,223	26,223	26,223
Adj-R2	0.009	0.0186	0.0017	0.0558	0.0530	0.0689

Note：*** p<0.01, ** p<0.05, * p<0.1.

5.3. The Influence of Managerial Myopia on E, S and G

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The term ESG represents the integrated level of the three dimensions of the corporate environment (E), social responsibility (S) and corporate governance (G). To further clarify the differences in the impact of managerial myopia on these three subdimensions, the scores of the three subdimensions of Huazheng were substituted for the explained variables in Model (1) for stepwise regression. The results are given in Table 5, which shows that the regression coefficients of managerial myopia on environmental and social responsibility are significantly negatively correlated at the 1% confidence level, and the inhibitory effect on the environment is greater. However, the regression coefficient of managerial myopia on corporate governance is positive, indicating that managerial myopia has a positive promoting effect on corporate governance. This result indicates that managers' shortsighted behavior leads them to pay more attention to internal governance and to ignore external responsibilities. The main reason for this behavior is that Chinese enterprises, especially SOEs, have strong government involvement in the appointment of management, and the government usually encourages enterprises to adopt equity and salary incentives to alleviate the problem of agency costs. Therefore, shortsighted management will pay more attention to earnings management and corporate governance and give up long-term socially responsible investment and environmental investment to hold important positions for a long time, which is also consistent with the conclusion of Choi et al. (2020)[64].

Table 5. The results of the sectional regression.

Variables	(1) E	(2) S	(3) G
Myopia	-0.189*** (-6.33)	-0.188*** (-5.63)	0.098*** (4.95)
Constant	-0.778*** (-7.22)	-649*** (-5.39)	-1.280*** (-17.87)
Controls	YES	YES	YES
Year	YES	YES	YES
Industry	YES	YES	YES
Observations	26,223	26,223	26,223
Adj-R2	0.102	0.251	0.221

5.4. Robustness Tests

5.4.1. Replace Explanatory Variables

The construction of ESG helps enterprises establish a good social image and thus attract more investor attention. Therefore, myopic managers have an incentive to deliberately exaggerate ESG performance to benefit from their self-interested behaviors. Moreover, there are many differences in the rating results caused by rating agency mistakes. Therefore, to ensure the robustness of the regression results and avoid bias in the ESG assessments of a single institution, this paper further uses Bloomberg ESG rating data to perform regression of Model (1) again, and the conclusions remain unchanged, as shown in Column (1) of Table 6.

Table 6. Robustness test.

Variables	Replace explanatory variables	Adjust the sample period	Replace the estimation method		
	(1) ESG	(2) ESG	(3) ESG P(0.25)	(4) ESG P(0.5)	(5) ESG P(0.75)
Myopia	-0.304*** (-9.82)	-0.217*** (-5.41)	-0.043** (-2.21)	-0.035** (-2.32)	-0.024* (-1.62)

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Controls	YES	YES	YES	YES	YES
Year	YES	YES	YES	YES	YES
Industry	YES	YES	NO	YES	YES
Observations	10154	10901	26,223	26,223	26,223
Adj-R2	0.670	0.078	0.0214	0.1540	0.0655

5.4.2. Adjust the Sample Period

In recent years, China's exchanges and CSRC have implemented increasingly strict requirements for the ESG information disclosure of enterprises, but the disclosure requirements of different institutions are not the same. In September 2018, the CSRC promulgated the "Governance Code for Listed Companies" to make uniform provisions for all listed companies to disclose environmental and social responsibility information. In view of this, to avoid differences in ESG ratings caused by different disclosure criteria, this paper changes the sample period to 2019-2022 and performs the regression again, and the conclusions remain the same, as shown in Table 6.

5.4.3. Replace the Estimation Method

Because many influencing factors affect ESG performance and the ESG performance of different enterprises varies greatly, this paper adopts a quantile regression model to analyze the relationship between managerial myopia and enterprise ESG performance to study differences in the degree of influence. The results in Columns (3) to (5) of Table 6 show that the regression coefficients at the three quantiles are all significantly negative at the 10% confidence level, indicating that managerial myopia has an obvious inhibitory effect on ESG performance and that this inhibitory effect decreases with the improvement of managerial myopia.

5.5. Endogenetic Analysis

Existing studies have shown that good ESG performance is more likely to be favored by institutional investors with a sense of social responsibility, which can effectively suppress managerial myopic behaviors by alleviating financing constraints, improving the quality of accounting information and attracting analysts' attention (Zhang et al., 2023)[65]. Therefore, to avoid the interference of missing variables and endogeneity problems such as mutual causality between managerial myopia and ESG performance, this paper chooses the mean value of managerial myopia in the same industry and region ($Amyopia$) and the per capita education level of the previous year in the location of the enterprise (Edu) as the instrumental variables of managerial myopia and adopts the 2SLS method for estimation, as shown in Table 7. The main reasons for choosing the above instrumental variables are as follows. (1) Companies in the same region and industry often face similar external environments and industry characteristics. Managerial myopia also converges across regions and industries. Therefore, the $Amyopia$ index can trigger the myopic motivation of managers, but it has no direct relationship with the ESG investment or performance of a single enterprise. (2) Education level can significantly improve managers' cognitive level. Therefore, Edu can stimulate managerial vision and ability and inhibit shortsighted behavior. However, Edu has no direct influence on the ESG performance of specific enterprises. Therefore, the above two instrumental variables satisfy the correlation and exogeneity requirements. The results show that in the first stage, the regression coefficient between $Amyopia$ and managerial myopia is significantly positive and that between Edu and managerial myopia is significantly negative, indicating that the higher the regional education level is, the more it can inhibit managerial myopia. In the second stage, managerial myopia and ESG performance are significantly negative at the 1% confidence level, and the statistics show that the empirical analysis does not have the problem of unidentifiable and weak instrumental variables, which further confirms the robustness of the benchmark results.

Table 7. Results of endogeneity test.

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Variables	instrumental variables (Amyopia)		instrumental variables (Edu)	
	(1) First stage Myopia	(2) Second stage ESG	(1) First stage Myopia	(2) Second stage ESG
Amyopia	0.9119*** (44.59)			
Edu			-0.035*** (-7.50)	
Myopia		-0.4406*** (-8.47)		-1.608*** (-4.53)
Robust F Statistic	257.62***		104.37***	
Wald F Statistic		5775.32***		3971.56***
Constant	0.1676*** (7.41)	-0.8716*** (-11.59)	0.2855*** (12.23)	-0.007 (-0.06)
N	26223	26223	26104	26104
R-squared	0.1269	0.1598	0.0561	0.2140

6. Further Analysis

6.1. Mechanism Analysis

To further verify whether managerial myopia reduces overall ESG performance by inhibiting green investment and green innovation sustainability, Models (2) to (5) are regressed one by one, and the results are shown in Table 8. The results in Columns (1) and (3) show that the regression coefficients between $Myopia$ and $Ginvest$ ($Ginnova$) are significant at the 1% and 5% confidence levels, respectively, indicating that managerial myopia can significantly inhibit green investment behavior and reduce the sustainability level of green innovation. The results in Columns (2) and (4) show that the regression coefficient of managerial myopia on ESG performance is negative at the 1% confidence level and smaller than the regression coefficient of the benchmark model. The regression coefficients of $Ginvest$ ($Ginnova$) and ESG performance are significantly positive at the 1% confidence level, indicating two paths: "managerial myopia → (reduce) green investment → (inhibit) corporate ESG performance" and "managerial myopia → (reduce) green innovation sustainability → (inhibit) corporate ESG performance". Hypotheses 2 and 3 are verified, which reflects that shortsighted managers have a serious lack of primary motivation to optimize corporate green investment and continuously improve green innovation.

Table 8. Results of mechanism test.

Variables	(1) Ginvest	(2) ESG	(3) Ginnova	(4) ESG
Myopia	-0.253*** (-4.45)	-0.023* (-1.71)	-0.130** (-2.52)	-0.023* (-1.70)
Ginvest		0.004*** (2.62)		
Ginnova				0.004*** (2.70)
Constant	-6.003*** (-29.02)	-0.066 (-1.23)	-2.129*** (-10.12)	-0.079 (-1.49)
Controls	YES	YES	YES	YES
Year	YES	YES	YES	YES
Industry	YES	YES	YES	YES
Observations	26,223	26,223	26,223	26,223

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Adj-R2	0.137	0.227	0.308	0.065

6.2. Heterogeneity Analysis

6.2.1. Nature of the Enterprise

Differences in the nature of the enterprise usually affect the impact of managerial myopia on ESG performance. In this paper, enterprises are grouped according to ownership, whether they are high-tech enterprises or whether they are high-polluting enterprises, and regression is carried out step by step. The regression results are shown in Table 9. Comparing Columns (1) and (2), managerial myopia is shown to effectively inhibit ESG performance for both SOEs and non-state-owned enterprises (NSOEs), but the inhibitory effect is stronger for SOEs. Previous studies have shown that shortsighted managers are more likely to take opportunistic actions such as rule-breaking to maximize their personal interests, including "greenwashing" to exaggerate their environmental responsibility. This phenomenon is particularly prominent in SOEs (Rus et al., 2012)[66], which makes the shortsighted management of SOEs more detrimental to their environmental and social responsibilities. Comparing Columns (3) and (4), managerial myopia is shown to significantly inhibit the ESG performance of non-high-tech enterprises but has no significant effect on that of high-tech enterprises. The main reasons are as follows. The state has made great efforts to develop high-tech industries that have long-term access to various financial subsidies and tax incentives. As the government's various policies are biased in their favor, high-tech enterprises have insufficient motivation to fulfill their environmental and social responsibilities. Comparing Columns (5) and (6), managerial myopia is shown to significantly inhibit the ESG performance of both HPEs and non-heavily polluting enterprises (NHPEs), but the degree of HPE inhibition is greater.

Table 9. Results of enterprise heterogeneity analysis.

Variables	**ESG**		**ESG**		**ESG**	
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
	SOEs	**NSOEs**	**high-tech**	**non-high-tech**	**HPEs**	**NHPEs**
Myopia	-0.051**	-0.040*	-0.040	-0.033**	-0.048*	-0.034**
	(-2.07)	(-1.94)	(-1.37)	(-2.00)	(-1.75)	(-2.03)
Constant	0.570***	-0.121	0.474***	0.527***	0.710***	0.084
	(3.00)	(-1.25)	(3.35)	(6.06)	(5.19)	(1.04)
Control	YES	YES	YES	YES	YES	YES
Year	YES	YES	YES	YES	YES	YES
Industry	YES	YES	YES	YES	YES	YES
Observations	9671	16552	8067	18156	7401	18822
Adj-R2	0.0275	0.1213	0.446	0.312	0.0580	0.1009

6.2.2. Enterprise Life Cycle

There are significant differences in the investment and financing decisions and strategic planning of enterprises in different life cycle stages. In view of this, this paper draws lessons from Liang Shangkun et al. (2019) to divide enterprises into growth periods, mature periods and decline periods [67]. As shown in Table 10, in the enterprise growth stage, managerial myopia is significantly negatively correlated at the 5% confidence level with enterprise ESG. Compared with the baseline regression results, managerial myopia has a stronger inhibitory effect on ESG performance during the growth period. However, as the enterprise life cycle progresses, when the enterprise enters the mature or the decline period, the inhibitory effect of managerial myopia on ESG performance is no longer significant. This result indicates that when enterprises are in the initial stage and in the growth period, managerial strategic deployment directly affects enterprise survival. Therefore, to satisfy the interests of shareholders and individuals, managers take short-term earnings management as their primary responsibility while ignoring environmental and social responsibilities. When an enterprise

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reaches maturity, its own creativity and risk-taking spirit decrease, which greatly affects myopic managers' enthusiasm for green investment and innovation. Enterprises in recession periods are even less able to take on more environmental and social responsibilities.

Table 10. Enterprise life cycle heterogeneity.

Variables	life cycle		
	(1) growth period ESG	(2) mature period ESG	(3) decline period ESG
Myopia	-0.048**	-0.012	-0.028
	(-2.16)	(-0.43)	(-0.93)
Constant	0.722***	0.654***	0.266*
	(6.32)	(4.29)	(1.67)
Control	YES	YES	YES
Year	YES	YES	YES
Industry	YES	YES	YES
Observations	11462	8202	6559
Adj-R2	0.279	0.365	0.396

6.2.3. Analyst Attention

Analysts have a strong ability to pursue and analyze market information and can reasonably evaluate and forecast the value of massive amounts of fragmented information to enterprises. Therefore, analysts are extremely sensitive to shortsighted managerial behavior. The greater the analyst attention is, the more restrictive the managerial myopia behavior (Hu et al., 2021[21]). In view of this, this paper divides listed companies into $Analyst\_high$ and $Analyst\_low$ groups according to the median number of research reports released by analysts in a year. Comparing Columns (1) and (2) of Table 11 shows that managerial myopia has a significant negative correlation with the ESG performance of the two groups, but the inhibitory effect is stronger for the $Analyst\_low$ group. This result indicates that enterprises with high analyst attention can exert more effective supervision mechanisms on corporate managers and effectively curtail managerial myopia behaviors so that managers are more willing to assume more environmental and social responsibilities.

Table 11. Heterogeneity of analyst concern and PEC.

Variables	Analyst attention		PEC	
	(1) Analyst_high ESG	(2) Analyst_low ESG	(3) Pollute_high ESG	(4) Pollute_low ESG
Myopia	-0.044**	-0.068***	-0.038***	-0.049*
	(-2.19)	(-2.69)	(-4.59)	(-1.73)
Constant	0.209*	0.136	1.524***	0.577***
	(1.70)	(1.24)	(2.88)	(6.37)
Control	YES	YES	YES	YES
Year	YES	YES	YES	YES
Industry	YES	YES	YES	YES
Observations	13122	13101	12430	13793
Adj-R2	0.104	0.080	0.415	0.004

6.2.4. PEC

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Listed companies must actively respond to the public's concerns about ESG performance. Companies with low PEC may lack social incentives to improve their ESG performance. Accordingly, referring to Wu Libo et al. (2022)[68], this paper adopts the Baidu haze total search index to represent the degree of PEC and divides the data into the $Pollute\_high$ group and the $Pollute\_low$ group according to the median. Comparing Columns (3) and (4) of Table 11 shows that when enterprises pay more attention to the public environment, the inhibiting effect of managerial myopia on enterprise ESG performance is mitigated.

7. Conclusions and Implications

As a long-term strategic choice for enterprises, ESG performance can not only support the implementation of China's "carbon peaking and carbon neutrality" goal but also help accelerate the formation of new, quality productivity. Because managers are the decision-making personnel regarding future enterprise development, their personal characteristics are crucial to long-term investment and strategic development. Based on upper echelons theory and stakeholder theory, this paper takes Chinese A-share listed companies from 2011 to 2022 as samples to empirically analyze the impact of managerial myopia on ESG performance. The research indicated the following five main findings. (1) Managerial myopia significantly inhibits ESG performance, a conclusion that remains valid after a series of robustness tests. (2) Managerial myopia effectively inhibits corporate environmental and social responsibility performance but helps improve corporate internal governance. (3) Managerial myopia significantly inhibits corporate ESG performance, primarily by inhibiting corporate green investment and green innovation sustainability. (4) From the perspective of enterprise attributes, for SOEs, heavily polluting enterprises and non-high-tech enterprises, managerial myopia has a stronger inhibitory effect on ESG performance. When an enterprise is in the growth stage, the myopic behavior of managers has the strongest blocking effect on improving ESG performance. (5) From the perspective of corporate external governance, greater analyst attention and greater PEC are conducive to weakening managerial myopia in terms of ESG performance.

Based on the above conclusions, this paper provides the following insights.

(1) The selection mechanism of senior managers should be optimized, and the temporal cognitive attributes of managers should be strengthened. Given the new situation of an abnormal global climate, "double carbon" development and the construction of a world community of fate, the demand for social responsibility through sustainable development is increasing daily, and improving microenterprise ESG investment has become the only way to address this demand. The conclusions of this paper confirm that managerial myopia is an important factor affecting ESG performance, green investment and green innovation and that manager myopia significantly inhibits these behaviors. Therefore, in addition to paying attention to general attributes such as age, gender, education background and management ability, enterprises should also pay attention to the specific attribute of time cognition when selecting and promoting senior managers, especially in SOEs, heavily polluting enterprises and non-high-tech enterprises. In addition, shortsighted managerial assessment should be addressed in accordance with the life cycle of the enterprise. Specifically, when an enterprise is in the growth stage, shortsighted managerial behavior cannot be ignored.

(2) The external supervision function should be strengthened and ESG performance comprehensively improved. In corporate governance, analysts and the public have the functions of external supervision and incentivization. This study also confirms that greater analyst attention and PEC are conducive to reducing managerial myopia in relation to ESG performance. In summary, it is necessary to continuously strengthen the supervision of microenterprises by analysts and the public in the fields of environmental and social responsibility, to encourage listed companies to carry out green investment and green innovation and constantly improve their social responsibility performance and environmental awareness, and to help enterprises develop sustainably.

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