

The Effectiveness and Influence Mode of ESG Investment

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Abstract

As the concept of ESG value has gradually taken root in the hearts of the people, domestic and foreign ESG investment is developing at a high speed, and investors are increasingly taking corporate ESG performance into consideration. Based on the data of A-share listed companies from 2021 to 2023, this paper empirically examines the relationship between ESG performance and corporate value of listed companies. Research shows that ESG investment can significantly enhance enterprise value, and non-state-owned enterprises, small-scale enterprises, high-pollution industry enterprises to improve ESG performance has a greater positive impact on enterprise value. Further research on its investment model can find that ESG investment performs better in emerging markets, can promote the transformation of social economic system, and can promote the implementation of social responsibility. Therefore, enterprises should enhance their ESG performance, grasp the development of emerging markets and the general environment of economic transformation, and implement the concept of green development.

Keywords

ESG Investment; ESG Performance; Enterprise Value.

1. The Present Situation and Effectiveness of ESG Investment

ESG (Environmental, Social and Governance) investment is to bring ESG-related factors into investment research practice. Based on the traditional financial analysis, the medium-and long-term development potential of enterprises is investigated through E, S and G dimensions. In 2004, the United Nations Environment Programme first put forward the concept of ESG investment, that is, to better integrate environmental, social and corporate governance factors into investment decisions. ESG investment is usually driven by ESG investors and carried out by financial intermediaries to form specific ESG investment strategies or financial products. The investment process needs to use ESG data, and the investment results need to be shown by ESG performance, which highlights that it is different from the traditional investment which is not included in the ESG perspective.

1.1. Current Situation of ESG Investment in Europe, the United States and Other Overseas Countries

According to the 2022 Global Sustainable Investment Review released by GSIA, global sustainable investment reached \$30.3 trillion in 2022, down 14% from \$35.3 trillion in 2020. The main reason for the decline is that GSIA adjusted its asset calculation method in the United States. With the exception of the United States, the amount of sustainable investment in countries and regions increased by 20%, and the proportion of sustainable investment in total investment increased from 35.9% to 36.9%. In other countries and regions, the scale of sustainable investment in Australia, New Zealand and Japan has increased to some extent. Europe has declined, in part because of increasing disclosure rigour in Europe. During the period 2020-2022, Europe and the United States still accounted for the highest proportion of sustainable investment assets in the world.

In addition, ESG investment also faces many challenges. First of all, different ESG rating standards among institutions and different ESG disclosure standards followed by different companies may cause trouble to investors^[1]. Secondly, in the short term, the benefit of ESG investment is not clear, and the correlation between ESG investment and financial performance is not significant enough, which leads to the lack of awareness of ESG factors and the lack of internal motivation in ESG investment. Finally, the "green" problem of enterprises is reflected in all countries, and the actual actions of enterprises are not in line with their commitments, which undermines the credibility of ESG investment.

However, with the expansion of the scale of ESG investment and the deepening of global awareness of sustainable development, countries begin to solve the above problems. The government has stepped up supervision and transparency to crack down on the "green" behavior of enterprises. Financial institutions around the world are gradually building perfect information disclosure standards for sustainable development of enterprises. In 2023, ISSB issued two standards, ISRS1 and ISRS2, which completely regulated the disclosure requirements of the contents related to the sustainable development of enterprises. In addition, the European Commission, the Hong Kong Stock Exchange and other organizations and institutions have also issued relevant disclosure standards, the global disclosure standards show a trend of more standardized and similar connotation. These practices enhance the credibility of the ESG rating system and lay a good foundation for ESG investment^[2].

1.2. The Present Situation of ESG Investment in China

China's ESG investment is developing rapidly, and the ESG investment market is constantly expanding. In 2023, China's ESG investment continues to grow rapidly, with a total scale of 33.06 trillion yuan, of which green credit accounts for the largest proportion, reaching 28.58 trillion yuan^[3].

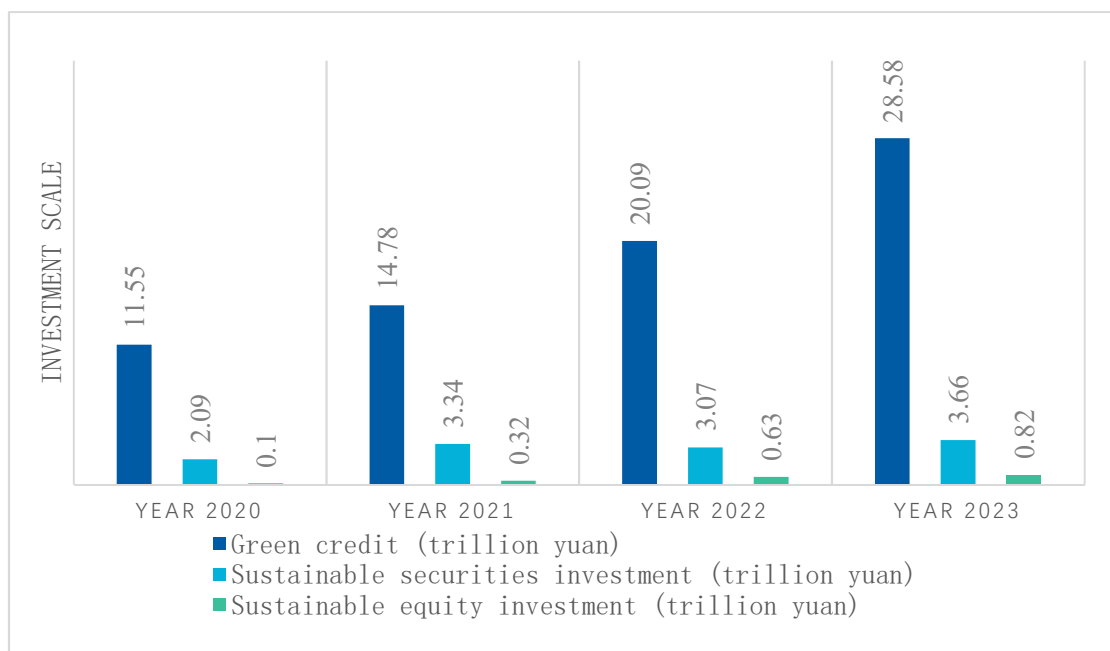


Figure 1. The scale of China's ESG Investment in 2020-2023

With the strengthening of supervision and the expansion of the scale of ESG investment, the proportion of companies disclosing information to ESG has also increased steadily. In 2023, about 34.5% of listed companies issued ESG reports, and the number of listed companies issuing ESG reports has increased from 371 in 2009 to 1755 in 2023^[4].

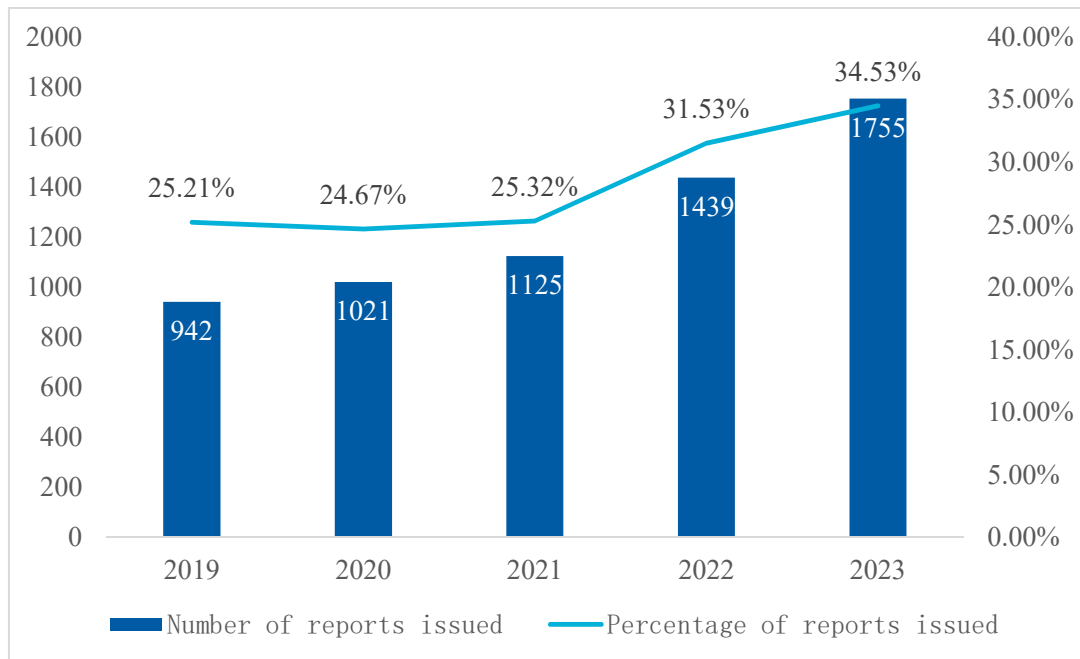


Figure 2. Release of ESG report of A-share listed companies in 2019-2023

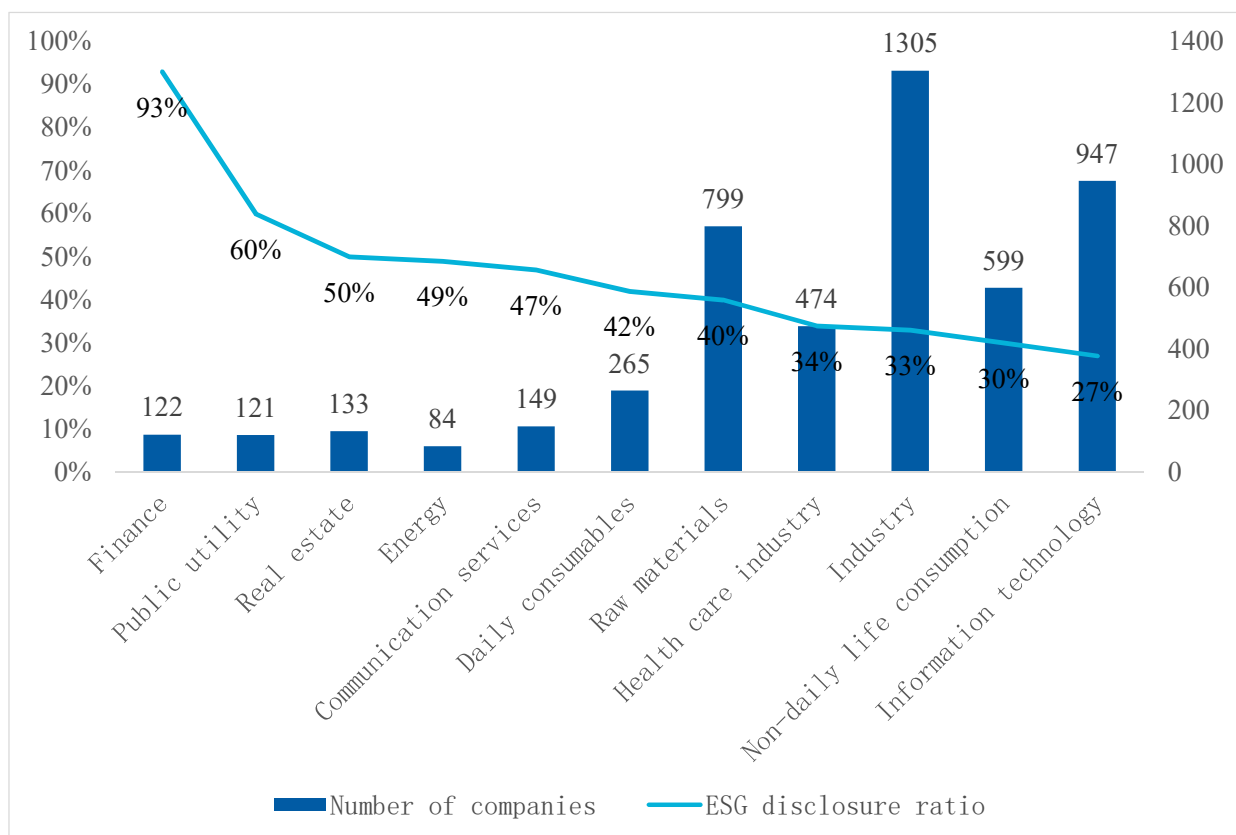


Figure 3. ESG Disclosure of A-share listed companies in 2022

The United Nations responsible Investment principles (PRI) takes building a sustainable global financial system as its mission to help investors understand the impact of ESG on investment value. Joining PRI means that enterprises integrate the value of ESG into the investment decision-making process. By the end of July 2023, nearly 140 domestic institutions have signed the principle of responsible investment^[5].

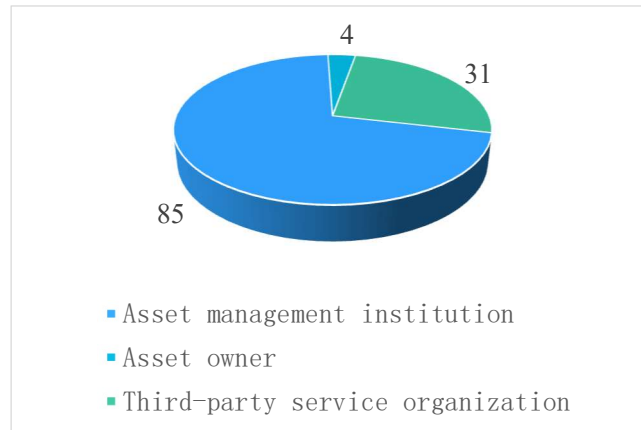


Figure 4. 2019-2023 types of new contracting agencies in PRI China

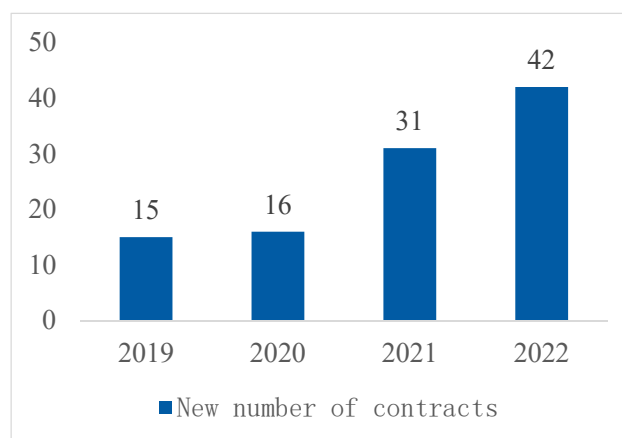


Figure 5. The number of new contracts signed by PRI China in 2019-2023

Generally speaking, the development of ESG investment in China in recent years shows the following major characteristics: first, the development process is relatively fast. In 2023, the scale of ESG investment increased by 34.4% compared with 2022, and the compound growth rate reached 34.02% in the past three years. According to the GSIA report, about 1/3 of domestic listed companies issued ESG reports in 2023, a significant increase compared with 1/4 in 2022. Second, the intensity of supervision is increasing. Since China announced the goal of "double carbon" in 2020, the climate issue has been the direction of China's financial transformation. In recent years, China continues to improve ESG disclosure requirements, and gradually strengthen government supervision. In 2023, SASAC issued the project "Research on the compilation of ESG Special report of Central Enterprise holding listed companies", which provided guidance for ESG disclosure. In 2024, the Shanghai, Shenzhen and North Stock Exchange issued the guidelines on self-discipline Supervision of listed companies-Sustainable Development report (draft for soliciting opinions), which adopted the combination of compulsory disclosure and voluntary disclosure to further improve the requirements of information disclosure. Third, the quality of green credit assets is high. In the past five years, the non-performing loan ratio is less than 0.7%, which is significantly lower than other loans in the same period [6]. But at the same time, China's ESG investment is also faced with challenges, such as the ESG information disclosed by enterprises is still not perfect, the phenomenon of "green" is more common, and it is necessary to continue to promote the unification and implementation of disclosure standards.

As a comprehensive index to measure the ability of sustainable management, ESG can provide a reference basis for financial institutions in high-quality project selection and investment

product design. As the main body of investment, financial investment institutions can meet the financing needs of real economic entities in sustainable operation by enriching ESG investment, and realize the benign interaction between real economy and financial institutions in ESG. In the future, ESG investment is a bigger, longer and more basic track. ESG investment is not only beneficial to investment, but also can promote the deepening of capital function, which has gradually become the trend of global investment development. With the tightening of regulatory policies and the acceleration of the flow of market information, China's ESG information disclosure requirements will become increasingly stringent, and domestic rating agencies will play a more important role in the promotion and practice of ESG concept and the establishment of a perfect ESG evaluation system. In the process of internationalization, more and more large international investment institutions enter the Chinese market, the scale and share of ESG investment will continue to grow, and both sides of ESG investment supply and demand are expected to make concerted efforts.

2. Performance of ESG Investment Effectiveness

After years of accumulation, ESG investment has been widely recognized by institutional investors such as pensions, mutual funds and endowments, and it is also in the interests of all market participants to improve the risk control and long-term returns of the portfolio. Specifically, ESG investment to enhance the value of enterprises is mainly manifested in alleviating financing constraints, improving investment efficiency and enhancing green innovation.

2.1. ESG Investment Can Effectively Reduce the Financing Cost of Enterprises

Increasing ESG investment can be achieved by easing financing constraints. First, from the perspective of information quantity, the performance of enterprises in ESG, as a kind of non-financial information disclosure, transmits more enterprise characteristic information to banks and other creditors, reduces the degree of information asymmetry, and makes it easy for enterprises to obtain external financing. Second, from the perspective of information quality, companies with better ESG performance are more willing to disclose information, receive more external attention and supervision from analysts and media, and urge enterprises to carry out earnings management less. Third, good ESG performance is in line with the expectations of stakeholders such as the government and regulators, and positive ESG performance will help enterprises to obtain external financial support such as government subsidies, so as to alleviate the problem of underinvestment, especially for certain industries such as heavily polluting industries, the disclosure of corporate social responsibility will directly affect the regulatory review of refinancing applications. Fourth, good ESG performance helps to reduce the risk of corporate debt default and make it easier to obtain funds. Therefore, good environmental performance reduces the probability that enterprises are burdened with huge environmental liabilities and increases the willingness of creditors to provide long-term loans. Early studies have shown that companies can reduce information asymmetry with corporate investors and improve corporate image (Freeman,1984) by assuming social responsibility. The existing research shows that enterprises can reduce their financing costs through good ESG performance (Qiu Muyuan and Yin Hong, 2019)^[8]. Recent domestic research shows that corporate ESG performance can provide investors with corporate information and attract investor preferences (Xie Liufang and Lu Sijie, 2024)^[9], while reducing business risk (Zhao Yaqian and Yuan Fangying, 2024)^[10], and finally reducing the cost of debt financing. Some scholars believe that enterprises can further promote enterprise innovation by improving the performance of ESG and reducing the difficulty of financing. (Fang Xianming and Hu Ding, 2023)^[11]. However, some scholars disagree that corporate ESG performance has a negative impact on corporate debt financing costs (Chen Ruohong et al., 2022)^[12].

2.2. ESG Investment Can Effectively Improve the Investment Efficiency of Enterprises

Enterprise ESG investment plays a positive role in improving enterprise investment efficiency, and good ESG performance can improve enterprise investment efficiency by reducing agency costs. First, better ESG performance means that enterprises have a relatively perfect corporate governance mechanism, which can effectively supervise and restrict the behavior of management, so as to reduce the emergence of agency problems. Second, the management of enterprises who take the initiative to manage environmental risks, assume social responsibility and strengthen internal governance have a strong awareness of environmental protection, which urges them to make decisions for the strategic goal of the long-term development of the enterprise, so as to reduce the investment risk. make its investment decisions more scientific. Third, enterprises that pay attention to ESG investment face stronger external supervision and constraints, and management is more cautious in investment projects and investment decisions, so as to improve the efficiency of enterprise investment. In a word, the cost of ESG helps to reduce the level of free cash flow, and then reduce the agency cost, reduce inefficient investment and improve investment efficiency. For example, KKR, the world's leading investment company, integrated ESG management into all asset investments in 2023, with a 46% return on investment in fiscal year 2020, and relatively less historical volatility than equity portfolios. Some scholars believe that enterprises with better ESG performance can better cope with climate-related risks and enhance their ability of sustainable development (Tang Ying et al., 2024)^[13]. Corporate social responsibility can enhance the transparency of information, and investors can obtain the information needed for investment, thus reducing the risk (Wang Jianling et al., 2019)^[14], and improving the underinvestment situation of enterprises (Wang Yulong and Deng Xiaowei, 2023)^[15]. Improve investment efficiency from multiple angles. In addition, according to the reputation theory and sustainable development theory, in the process of developing ESG, enterprises improve their reputation and reduce the information asymmetry with investors, so as to reduce principal-agent costs and improve investment efficiency.

2.3. ESG Investment Contributes to Green Innovation of Enterprises

Enterprises to increase ESG investment is conducive to enterprise innovation. From the perspective of environmental performance, on the one hand, in order to maintain and improve their environmental performance, enterprises will reduce environmental pollution in the production process and waste emissions from production terminals through green technology innovation and product innovation; on the other hand, better environmental performance will also ease financing constraints by reducing financing costs, invest more funds in technological innovation and product innovation research and development, and improve the innovation ability of enterprises. From the perspective of social performance, according to the stakeholder theory, corporate social responsibility can enable enterprises and investors and other multi-stakeholder subjects to establish a more extensive and reliable relationship. Enterprises can obtain diversified innovative knowledge resources through the external knowledge network built with investors, consumers and other stakeholders, so as to promote corporate innovation. From the perspective of corporate governance, good corporate governance alleviates principal-agent conflicts through incentive and restraint mechanisms, urges management to pay attention to enterprise innovation, increases investment in R & D innovation, and realizes the long-term sustainable development of enterprises. Nuveen, the world's largest farmland asset manager, analyzes the impact of droughts, floods, wildfires and deforestation on investment in sustainable agricultural production, focusing on the balance between supply and demand for food and fiber and combining data related to climate change. Companies use innovative data analysis tools to reduce risk and improve productivity of their farmland assets, supplement key

land details through satellite imaging and data analysis, analyze changes in terrain and climate impacts, and track and monitor investment performance. According to the early research, the enterprise should take the benefit as the only responsibility, and the green development factor of the enterprise will cause additional cost. However, with the continuous maturity of the theory of sustainable development, more and more scholars put forward different views. Recent domestic research shows that ESG rating has a positive effect on corporate green innovation (Zhao Qinna and Li Hang, 2024)^[16]. Better ESG performance can strengthen corporate investment in environmental protection, ease corporate financing constraints and improve the quality of internal control, thus promoting corporate green technological innovation (Li Jinglin et al., 2024)^[17]. Moreover, ESG investment has played a key role in the transition of financial markets to green finance (Tang Ying et al., 2023)^[13].

3. An Empirical Study on the Influence of ESG Investment on Enterprise Value

3.1. Research Design

In order to quantitatively study the relationship between ESG performance and corporate value of listed companies, and to investigate the regulatory effect of the nature of ownership of listed companies on the relationship between ESG and corporate value, this paper takes the data of A-share listed companies from 2021 to 2023 as samples to empirically analyze the influence mechanism of ESG investment on corporate value of listed companies.

3.1.1. Model Settings and Variable Definitions

In order to study the impact of ESG rating on enterprise value, the following econometric models are constructed:

$$\text{TobinQ}_{i,t} = \alpha_i + \beta_1 \text{ESG}_{i,t} + \beta_2 \text{Size}_{i,t-1} + \beta_3 \text{Lev}_{i,t-1} + \beta_4 \text{CF}_{i,t-1} + \beta_5 \text{Top1}_{i,t} + \beta_6 \text{Dir}_{i,t} + \text{y dum} + \varepsilon_{i,t} \quad (1)$$

In formula (1), i represents the individual of the enterprise, t represents the year, the unobservable random variable α_i represents the individual heterogeneity, and $\varepsilon_{i,t}$ is a disturbance term that changes with the individual and time.

The explained variable is enterprise value TobinQ, which is taken from the financial index analysis database of CSMAR Chinese listed companies. Tobin Q is the ratio of the stock market value of the enterprise to the total replacement assets of the enterprise. Tobin Q is equal to the total market value divided by total assets at the end of the year. This ratio reflects investors' expectations of future profits through the estimation of the comprehensive ability of the enterprise to operate and make profits in a period of time in the future, which is a measure of the market value of the enterprise.

The core explanatory variable selects the ESG evaluation data developed by Huazheng Company combined with the actual situation of China's A-share market. Huazheng ESG evaluation system is based on the core connotation and development experience of ESG, combined with the actual situation of the domestic market, constructs a three-level index system from top to bottom. It includes 3 first-level indicators, 14 second-level indicators, 26 third-level indicators and more than 130 underlying data indicators. In the process of ESG evaluation, the data integrates traditional data and alternative data to build an AI-driven big data engine. Through the combination of quarterly regular evaluation and dynamic tracking, the ESG scores of all A-share listed companies in the past 10 years are systematically calculated (with a total score of 100,100), and the nine grades of "AAA-C" are given accordingly. With reference to the investment grade and non-investment grade rating methods of S & P and

Moody's, this paper quantifies the ESG performance of companies with rating BBB and above as 1, indicating the enterprises with good ESG performance, and the rest as 0, indicating the enterprises with poor ESG performance.

In terms of control variables, taking into account the size of the company, the nature of the enterprise and other factors will affect the value of the enterprise. This paper introduces company size (Size), asset-liability ratio (Lev), total cash asset ratio (CF), equity concentration ratio (Top1) and independent director ratio (Dir) as control variables. In order to overcome the endogenous problem of variables, the method of lagging behind one period is adopted for the micro characteristic variables of enterprises. Considering that the model may have other unconsidered factors that change with time, this paper also adds the annual virtual variable (ydum).

3.1.2. Sample Selection and Descriptive Statistics

The ESG rating data of this paper comes from the ESG database of Wind China Securities A-share listed companies, which is the ESG database of A-share listed companies developed by Huazheng Company. The data selected in this paper are the ESG rating data of A-share listed companies (a total of 4712) from 2021 to 2023, and the rest of the corporate financial data are from Wind database.

Table 1. Variable definition and data source

Variable type	Variable name	Variable definition	Data source
Explained variable	TobinQ	Total market capitalization / year-end total assets	CSMAR
Explanatory variable	ESG	Assign 0 below BBB, and 1 above	Wind
Control variable	Size	Total assets of the company (in yuan), take logarithm	
	Lev	Total liabilities / total assets x 100	
	CF	Current net cash flow / total assets at the end of the year x 100	
	Top1	Shareholding ratio of the largest shareholder x 100	
	Dir	Number of independent directors / board of directors x 100	

Table 2. Descriptive statistical results of major variables

Variable name	Observed number	Mean value	Standard deviation	Minimum value	Maximum value
TobinQ	12,234	2.139	2.450	0.023	55.55
ESG	12,234	0.601	0.490	0	1
Size	12,234	22.400	1.521	16.412	31.19
Lev	12,234	46.178	166.165	0.836	17834.55
CF	12,234	1.735	9.833	-78.454	74.097
Top1	12,234	32.440	14.789	2.430	89.990
Dir	12,234	0.3790	0.055	0.143	0.800

In order to eliminate the interference of abnormal values to the estimated results, other variables except ESG are tailed at 1% and 99% of their distribution. Table 2 shows the descriptive statistical results of the main variables. Furthermore, Table 3 reports the annual average ESG of state-owned and non-state-owned companies, large enterprises and small

enterprises. For the sample enterprises, the ESG performance of enterprises continues to improve over time, which means that with the strengthening of government departments' disclosure of ESG information such as environmental and social responsibility, enterprises are strengthening their own ESG construction and striving to improve their ESG level, but with the passage of time, the standard deviation of ESG level among enterprises becomes larger and larger, and the performance of different enterprises is different and differentiated seriously.

Table 3. The ESG rating of enterprises by year and property right

Yaer	Full sample		State-owned sample		Non-state-owned sample		Sample of large enterprises		Small business sample	
	Mean value	Standard deviation	Mean value	Standard deviation	Mean value	Standard deviation	Mean value	Standard deviation	Mean value	Standard deviation
2021	0.578	0.494	0.596	0.490	0.568	0.495	0.576	0.495	0.578	0.494
2022	0.590	0.492	0.616	0.486	0.578	0.494	0.563	0.497	0.592	0.492
2023	0.629	0.483	0.626	0.484	0.630	0.483	0.599	0.491	0.631	0.483

3.2. Result Analysis

3.2.1. ESG Investment Significantly Increases Enterprise Value

Table 4. The ESG rating of enterprises by year and property right

Variable	Hybrid OLS estimation	
$ESG_{i,t}$	0.205*** (0.041)	0.188*** (0.041)
$Size_{i,t-1}$	-0.614*** (0.013)	-0.615*** (0.013)
$Lev_{i,t-1}$	0.002*** (0.000)	0.002*** (0.000)
$CF_{i,t-1}$	0.029*** (0.002)	0.029*** (0.002)
$Top1_{i,t}$	0.002 (0.001)	0.002 (0.001)
$Dir_{i,t}$	1.322 (0.362)	1.299*** (0.361)
Constant term	15.062***	-457.574***
y dum	Uncontrolled	Controlled
Observations	12,234	12,234
R^2	0.1863	0.193
F-test	466.64	418.18

According to the properties of the data, the mixed least square method is used to estimate the results, and the effect of time is taken into account. Comparing R^2 in the group with and without time virtual variable regression, the results show that the interpretation coefficient of the latter is higher, and the model fitting is better after adding time variables. The F test for the joint significance of time virtual variables also rejects the original hypothesis that there is no time fixed effect at the level of 1%, which further shows that the model has time effect. Therefore, the model with time effect is selected to estimate the parameters. In the analysis of the impact of ESG performance on enterprise value, the coefficient of ESG is positive and significant at 0.188 level, indicating that there is a positive correlation between ESG and enterprise value, that is, enterprises with better ESG performance have higher value, which is consistent with the

conclusion of the previous analysis on the effectiveness of ESG investment. In addition, in terms of control variables, the coefficient of enterprise size (Size) is significantly negative, indicating that because most small enterprises are in the growth period, their profits fluctuate and are more likely to be overvalued by the market, which shows that the value of small enterprises is higher; the impact of cash total asset ratio (CF) on corporate value is significantly positive, indicating that investors prefer enterprises with greater growth potential, good growth and good financial position.

3.2.2. The Scale of Enterprises, the Nature of Property Rights and Environmental Governance Can Regulate ESG Investment.

Table 5. Empirical results of ESG rating, Enterprise characteristics and Enterprise value

	The nature of enterprise		scale		Industry characteristics	
	Non-state-owned	State-owned	Small	Large	Not polluting	polluting
$ESG_{i,t}$	0.287*** (0.054)	-0.089* (0.051)	0.237*** (0.043)	-0.148** (0.064)	0.040 (0.074)	0.208*** (0.049)
$Size_{i,t-1}$	-0.681*** (0.022)	-0.319*** (0.016)	-0.795*** (0.018)	0.027 (0.028)	-0.528*** (0.021)	-0.635*** (0.018)
$Lev_{i,t-1}$	0.002*** (0.000)	-0.015*** (0.001)	0.002*** (0.000)	-0.030*** (0.002)	-0.007*** (0.001)	0.003*** (0.000)
$CF_{i,t-1}$	0.029*** (0.002)	0.016*** (0.003)	0.028*** (0.002)	0.055*** (0.008)	0.022*** (0.004)	0.031*** (0.002)
$Top1_{i,t}$	0.004*** (0.002)	-0.002 (0.002)	0.003** (0.001)	-0.007*** (0.002)	-0.005*** (0.002)	0.005*** (0.002)
$Dir_{i,t}$	0.457*** (0.503)	1.392*** (0.416)	0.863*** (0.384)	0.339 (0.476)	3.052*** (0.672)	0.612 (0.426)
Constant term	-527***	-233.6***	-471.2***	-83.788	-120.9	-596.6
Ydum	Controlled	Controlled	Controlled	Controlled	Controlled	Controlled
Observations	8333	3901	11538	696	3459	8775
R^2	0.16	0.214	0.187	0.316	0.2369	0.1807
F-test	227.15	151.75	377.81	45.32	153.07	276.21

In the process of examining the impact of ESG investment on enterprise value, some characteristics of the enterprise itself will affect the transmission process of the effect. The nature of property rights of enterprises is an important factor affecting the performance of corporate ESG. Enterprises with different property rights have different effects of fulfilling social responsibility. According to the results of Table X, the ESG coefficient of non-state-owned enterprises is 0.287 and is significant at 1% level, indicating that improving ESG performance of non-state-owned enterprises can significantly improve enterprise value, while the ESG coefficient of state-owned enterprises is negative and not significant. State-owned enterprises are not only affected by the market, but also subject to administrative intervention, which leads to the state-owned enterprises bear multiple economic, environmental, social and other responsibilities. As the state-owned enterprises assume more responsibilities, their good image has been deeply rooted in the hearts of the people, so when stakeholders get used to it, a better ESG performance has been difficult to bring more economic benefits to enterprises. Non-state-owned enterprises pay more attention to survival and development, and stakeholders have higher expectations for ESG performance. When the ESG performance of non-state-owned enterprises is improved, it is easier to improve the company's reputation and gather talents, so as to obtain higher enterprise value. To sum up, it can be concluded that the improvement of

ESG performance of non-state-owned enterprises has a greater positive impact on enterprise value than state-owned enterprises.

Due to the differences in financial strength and strategic objectives of enterprise development, there are great differences in ESG performance among enterprises of different sizes, and this difference will also affect enterprise value. Therefore, this paper analyzes whether different enterprise size will have an impact on the relationship between ESG performance and enterprise value. According to the average size of listed enterprises in each year, the enterprises whose average size is greater than (less than or equal to) the median is divided into large (small) enterprises. As can be seen from Table X, the ESG of small-scale enterprises is positive at 1% significant level, indicating that the smaller the enterprise is, the more obvious the effect of improving ESG performance on enterprise value is. Small-scale enterprises prefer to gain social recognition through good ESG performance, and then help enterprises to obtain more resources. Compared with large-scale enterprises, small-scale enterprises face congenital disadvantages and resource constraints, so small-scale enterprises need to improve the environment, social responsibility and corporate governance and other non-financial information to help enterprises obtain the resources needed for development. At the same time, compared with large-scale enterprises, the improvement of organizational legitimacy and corporate reputation has greater marginal utility for small enterprises. To sum up, it can be concluded that the smaller the enterprise size is, the greater the positive impact of improving ESG performance on enterprise value is.

The production and operation activities of heavily polluting industries usually have negative externalities, which will adversely affect the environment and people's life and health safety. According to the regulations in the guidelines for Environmental Information Disclosure of listed companies published by the Ministry of Environmental Protection, enterprises engaged in 16 industries such as thermal power, iron and steel, cement, electrolytic aluminum, coal, metallurgy, chemical industry, petrochemical, building materials, paper, brewing, pharmaceutical, fermentation, textile, leather and mining are defined as polluting enterprises, and the rest are non-polluting enterprises. As can be seen from the table, the positive effect of ESG performance on enterprise value in polluting enterprises is more significant. Compared with enterprises in other industries, enterprises in pollution industries are facing greater pressure to reduce emissions, and they are also closely watched by the government, society and the public. In a market environment with sufficient information exposure and sensitive response, when polluting enterprises respond to the pressure of public opinion through industrial transformation or technological innovation, they have the opportunity to fully transmit positive development signals to the market because of "high attention". To enhance the value of the enterprise. To sum up, it can be concluded that the improvement of ESG performance of high pollution enterprises can significantly increase enterprise value.

4. Analysis of Effective Investment Mode of ESG

4.1. ESG Investment Performs Well in Emerging Markets

ESG investments are doing even better in emerging markets. According to the back-test study of MSCI ESG Composite Index conducted by Zhi Zhi Research Institute, the performance of ESG investment strategy is not consistent in different markets. In developed countries, due to the mature development of ESG investment strategy and high penetration, ESG investment strategy does not show obvious excess returns. The ESG investment strategy has performed well in emerging markets, with the MSCI emerging markets composite index rising 408.5 per cent from its lowest point in February 2009 to March 2024. The good performance of ESG investment strategy in emerging markets and Chinese markets will further strengthen the ESG investment tendency of the corresponding markets. However, ESG investment in emerging markets faces

more challenges than mature markets. First, it is caused by opaque information and lack of regulation; second, as a result of opaque information and lack of regulation, few companies in emerging markets can meet the standards of ESG, and there are many problems to be solved and improved.

4.2. ESG Investment and Economic and Social Transformation form Benign "Mutual Feeding"

An efficient and sustainable economic and social system can feed back the responsible investment guided by long-term value and income. Realizing the industrial green transformation and the goal of "double carbon" will produce a huge demand for green and low-carbon financing, which will bring broad development opportunities for ESG investment. China is in the historical process of green and low-carbon transformation and development. ESG is responsible for attaching importance to the coordinated development of environment, society and governance, which accords with the new development concept of innovation, coordination, green, openness and sharing, naturally integrates the policy objectives of green development into financial instruments, and effectively guides the allocation of funds to renewable energy, energy conservation and carbon reduction projects through financing. Promote the "three high" enterprises in the industrial chain to achieve transformation and upgrading through the research and development of new technologies for energy conservation and emission reduction. Under the guidance of the goal of "double carbon", the goal of implementing the ESG investment concept and developing the green securities market is to solve the dilemma of environmental resources by guiding the allocation of funds. First of all, the comprehensive analysis of non-financial indicators of ESG investment strategy can help investors identify potential ESG risks, protect the interests of investors, and enhance the resilience of market development. Secondly, green industry financing has the characteristics of large investment scale, long return cycle and slow effective speed, while ESG responsibility investment has the attributes of long-term, risk aversion and public welfare, which can not only meet the financing needs of green industry, but also attract medium-and long-term funds such as pension and insurance funds to enter the market and expand new investment channels. Finally, ESG liability investment has formed a relatively perfect product service, rating system and disclosure standards in the development of practice, which can promote the improvement of the green securities market.

4.3. Effective Implementation of Social Responsibility is the Driving Force of ESG Investment

ESG responsible investment promotes the effective implementation of corporate social responsibility. In a sense, ESG investment can be regarded as an extension of the capital market, and the investment activities of investment institutions are the embodiment of their own corporate social responsibility. Investment institutions participate in or undertake the work of green index compilation, industry standard formulation and investor education, incorporate ESG indicators into investment decisions, use their own funds or guide public investors to support green projects, and guide short-term speculative behavior to long-term value investment. On the other hand, the ESG investment principle provides a commercial institutional guarantee for listed companies to implement the concept of green development and fulfill their social responsibility to protect the environment. ESG evaluation system and information disclosure standards provide operational and standardized quantitative evaluation tools for listed companies' ESG practice, and form a transmission mechanism to promote enterprises to improve ESG performance.

5. Conclusion

Enterprises with good ESG performance have higher value and can bring better return on investment, especially in the long run. Therefore, long-term institutional investors should be encouraged to pay special attention to ESG information such as corporate social responsibility and environmental performance when making portfolio and investment decisions, actively follow the green index, and give full play to the demonstration effect of large institutional investors. Enterprises should abandon the one-sided view that protecting the environment, undertaking social responsibility and improving corporate governance will cost a lot of money, and actively promote ESG. For example, with the tightening of environmental policy and the strengthening of supervision, environmental performance has become the main risk that needs to be considered in the development of the company. Therefore, through capital investment to improve the overall performance of corporate ESG, avoid environmental risks, we can obtain the increase of corporate value. Non-state-owned enterprises and small-scale enterprises have congenital weakness, especially in terms of financial indicators. By improving the ESG to enhance the non-financial advantages of the enterprise, to obtain the resources needed for enterprise development and the attention of investors, so as to enhance the enterprise value. Non-polluting enterprises should not only do "good deeds" and improve ESG performance, so as to establish a good social reputation.

In terms of ESG effective investment model, companies can seize the opportunities of emerging market development and take into account ESG factors at the national and corporate levels to improve performance. At the same time, enterprises should grasp the environmental background of green and low-carbon transformation and development, and guide the allocation of funds to renewable energy, energy conservation, carbon reduction and other projects to achieve enterprise transformation and upgrading. Finally, by establishing a good system, implementing the concept of green development and fulfilling the social responsibility of protecting the environment, enterprises also provide commercial guarantee for corporate value.

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