

The Impact of ESG on Financial Performance of Listed Companies - An Analysis Based on Corporate Reputation Perspective

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Abstract. In recent years, with the further development of the ESG concept in China, the impact of ESG performance of listed companies on enterprises has gradually received widespread attention. Based on stakeholder theory and sustainable development theory, this paper finds that for the quarterly data of 3,275 A-share listed companies from 2018 to 2021: improving the ESG performance of listed companies has a significant positive impact on financial performance, and through The stepwise regression method was used to test that corporate reputation has a fully mediating effect in the transmission mechanism, and further research found that the impact of the ESG performance on the performance level of private enterprises is more significant than that of state-owned enterprises, and the impact on the performance level of medium-sized enterprises is more significant than that of large-scale and small-sized enterprises.

Keywords: ESG performance; interest stakeholders; corporate performance; corporate reputation; corporate size; corporate nature

1. Introduction

In recent years, the ESG concept has been gradually introduced into the evaluation system of enterprises, which is a comprehensive evaluation of enterprises from three aspects: environmental, social and governance. The ESG evaluation system is based on the concept of "responsible investment", which was initially focused on a single level of social responsibility (CSR), but the ESG evaluation system adds two different dimensions to the indicators, attempting to make a more comprehensive evaluation of enterprises. From the perspective of investors, it improves the corporate information disclosure system and provides investors with more comprehensive information related to decision-making; from the perspective of enterprises, improving the ESG performance of listed companies can reduce the cost of corporate financing and provide more possibilities for corporate technological reform and green innovation.

Compared to China, the development of the ESG concept in the West is more advanced, dating back to the 1970s, and the mainstream ESG disclosure guidelines are also led by international organizations, while China's ESG system has been in its infancy due to the imperfect disclosure mechanism and the late start of the concept. In recent years, as global climate and resource issues have become increasingly prominent, Comrade Xi Jinping put forward the five major development concepts of "innovation, coordination, green, openness and sharing" at the Fifth Plenary Session of the 18th CPC Central Committee, and again proposed green development in the report of the 19th National Congress to promote the harmonious co-existence of man and nature. In September 2020, the "double carbon" target was proposed again, and the development of ESG in China entered the fast lane. Through a series of supportive and guiding policies, governments and regulators at all levels have given a strong boost to the development of green finance and ESG systems in China, promoting the disclosure of ESG information by listed companies and the development of theoretical research in related fields.

Combining stakeholder theory and sustainable development theory, this paper firstly elaborates on the relevant literature on ESG and financial performance, ESG and corporate reputation, and corporate reputation and corporate performance in the second part, and then explores the correlation between ESG and financial performance in turn in the third part, introduces corporate reputation as a

mediating variable to test the causal relationship between ESG and financial performance, and also conducts group regression on the sample to explore. The results of the study show that improving ESG performance of listed companies has a positive impact on financial performance, and corporate reputation has a full mediation effect, and further research finds that compared to state-owned enterprises, ESG performance has a more significant impact on the performance level of private enterprises; compared to large-scale and small-scale. The effect on the performance level of medium-sized enterprises is more significant than that of large-scale and small-scale enterprises. The fourth part of the paper uses Tobin Q as a proxy for firm market value to replace ROA to test the validity of the findings. The novelty of this paper is that it is the first time that corporate reputation is used as a mediating variable to explain the relationship between ESG performance and financial performance, and it also explores the strength of the mediating effect under different sizes and firm properties, which enriches the ESG research.

2. Review of the literature

2.1 ESG and financial performance

At present, there are not many in-depth studies on the ESG system in China. The main investigations in the field of ESG and financial performance include: Xu Guanghua (2022)^[1] et al. selected Chinese A-share manufacturing listed companies from 2016 to 2019 as a sample and used TobinQ value as a measure of enterprise value, and the results of the study showed that there is a significant positive relationship between the degree of corporate ESG disclosure and enterprise value, and ESG disclosure only after the policy is released will contribute to firm value, while the non-state nature and high marketability will also have a positive impact. While Ren Zixian (2021)^[2] et al. took A-share listed companies in the heavy pollution industry as a sample, split the three systems of ESG, selected indicators from three perspectives of environment, social responsibility and corporate governance and adopted principal component analysis to determine the weights, and EVA as a proxy variable for financial performance, the results of the study showed that environmental factors had the greatest impact on the financial performance of companies in the heavy pollution industry. However, the sample of this study was very limited and no generalized conclusion was obtained. Zhang Changjiang (2021)^[3] et al. argue that ESG performance affects the market performance and financial performance of listed companies by influencing investor confidence, and the study results confirm that good ESG performance of listed companies has a significant positive impact on their market performance and financial performance, and investor confidence has a good mediating transmission effect. The study by Zhang Xianhua and Gao Yuanyuan (2021)^[4] found that there is an inverse interaction causality between ESG performance and financial performance, and the negative correlation between the governance dimension and financial performance is the most significant compared to other dimensions, probably because ESG investment is in the early stage and ESG investment cannot be immediately translated into financial returns in the short term, resulting in an inverse relationship between the two. The relationship is inverse. Qiu Muyuan and Yin Hong (2019)^[5] studied the relationship between ESG ratings and corporate financing costs and showed that improving ESG scores can significantly reduce financing costs. Wang Linfang, Lian Yonghui and Dong Jie (2022)^[6] showed that ESG can indirectly improve corporate performance by alleviating financing constraints, improving corporate investment efficiency and reducing corporate financial risk, and the mediation effect of corporate risk factors represented by Zscore on performance is the largest, which to a certain extent opens the "black box" of ESG affecting corporate value. This opens up the "black box" of ESG influence on corporate value to a certain extent. Based on the theory of sustainable development, only by incorporating non-financial factors such as environmental resources into the scope of corporate decision-making can a company establish a long-term competitive advantage, which in turn translates into improved financial performance and longer-term economic benefits for the company.

This paper, therefore, proposes hypothesis 1: ESG of listed companies has a positive relationship with corporate performance.

2.2 ESG and Corporate Reputation

With the advent of the Internet+ era and the concomitant reduction in information uncertainty in the capital markets, corporate reputation has become a key measure that is inseparable from and closely influenced by the company itself. Stakeholder theory was introduced in Western countries around the 1960s and developed rapidly after the 1980s and gradually influenced the choice of corporate governance models in the US and the UK while promoting the transformation of corporate management practices. Based on stakeholder theory, Wen Subin (2008)^[7] and others classified corporate stakeholders into monetary capital stakeholders, human capital stakeholders, social capital stakeholders and ecological capital stakeholders according to the different forms of capital investment to set social responsibility variables and found that they had a positive effect on financial performance. Based on stakeholder theory, Lu Liyang (2022)^[8] et al. found that when cultural and entertainment enterprises are responsible to shareholders, creditors and the government, they have a significant positive impact on the financial performance of the enterprises. Therefore, from the stakeholder perspective, the concern of enterprises should not only be limited to consumers, but also spread to other stakeholder groups, such as the enterprise's shareholders, creditors, employees, consumers and other partners, as well as government departments, media, environmentalism and other pressure groups, and also include the natural environment and other objects directly or indirectly affected by the enterprise's business activities, which are closely related to the survival and development of the enterprise. They are closely related to the survival and development of the company, and therefore their interests must be taken into account in business decisions. For the natural environment and the public, the company has an image of environmental protection and public welfare; for consumers and the government, the company has an image of social responsibility and product quality; for employees and other relevant groups, the governance ability of the company's management is also particularly important. A company that performs well in ESG will send a positive message to its stakeholders, improving their perception of the company's reputation and increasing their positive perception of the company.

This paper therefore proposes Hypothesis 2: An increase in ESG performance scores by listed companies has a positive impact on corporate reputation ratings.

2.3 Corporate reputation and financial performance

The main studies in the literature on the relationship between corporate reputation and corporate performance are: Wiedmann, K.P., C.J. (2007)^[9] pointed out in his study that corporate reputation is an intangible resource that can bring sustainable competitive advantage to a company, and that by enhancing corporate reputation, it can strengthen investor confidence, enhance the social influence of the company, and thus effectively improve financial performance. In their study, Cai Yuexiang, Bian Jihong and Sun Zhenhua (2015)^[10] indicated that corporate reputation has an important impact on corporate performance and that corporate visibility and reputation can have a more significant positive impact on the reduction of operating costs, and Tang Yuanxiong (2018)^[11] pointed out in his study that a good corporate reputation can bring certain positive returns to a company, which also to a certain extent provides an opportunity for companies to improve ESG performance while This also provides a new way of thinking for companies to regulate their corporate reputation by improving their ESG performance, thereby influencing the public's existing perception of the company, gaining social recognition, improving performance levels, and bringing more value to the company.

In summary, China's research theory on ESG in recent years is in the process of rapid advancement, in the study of the relationship between ESG performance and corporate performance, no consistent conclusion has been reached, it is still in the exploration stage, and there are fewer studies that delve into the specific mechanism of ESG impact on corporate performance, and there is still a need to supplement the logical relationship. This paper, however, examines the mechanism of ESG

performance on corporate performance from the perspective of corporate reputation as a mediating effect. The study by Xu Shiwei (2017)^[12] and others showed that corporate reputation plays a significant mediating effect in the process of corporate social responsibility affecting performance. The analysis shows that, with the continuous development of the domestic capital market, market competition is intensifying and there is information asymmetry between enterprises and investors, investors are no longer limited to focusing on the financial indicators of enterprises, and corporate reputation has gradually become one of the value criteria for investors to measure enterprises and become a communication link between enterprises and the outside world, and it has a certain binding effect on enterprises themselves, and a good corporate reputation often brings more competitive advantages for A high ESG rating system, as a derivative of social responsibility, can help to reduce the cost of financing and thus have a positive impact on corporate performance, as a high ESG rating effectively improves corporate reputation.

This paper, therefore, proposes Hypothesis 3: Corporate reputation as a mediating variable in the impact of ESG performance of listed companies on financial performance.

3. Study design

3.1 Sample selection and data sources

This paper selects all A-share listed companies as the research sample, considering that China's ESG evaluation system has only been gradually improved in recent years, the ESG score data for 2018-2021 was selected for the study, and the following screening was done: (1) exclude companies with missing ESG scores for three consecutive years, (2) exclude companies in the financial sector, (3) exclude ST and ST* companies, and finally get 3,275 companies with 49,016 observations. ESG score data were obtained from the Wind database and all other data were obtained from the Guotaian database. In addition, to control for the effect of extreme values, all variables except REP are tail-trimmed at the 1% and 99% levels in this paper.

3.2 Variable selection and research model design

(1) Variable selection

① Explanatory variables

Referring to Zhang Changjiang, Zhang Yue and Chen Yuqing (2021)^[3], this paper selects the return on assets ROA as a measure of enterprise performance, which is the ratio of net profit to total assets of an enterprise, reflecting the profitability of the enterprise's occupied capital and reflecting the efficiency of its asset operation and its ability to create value. The higher the indicator, the more efficient the enterprise is in the use of the economic resources it possesses, and the stronger the enterprise's ability to compete and grow.

② Explanatory variables

This paper focuses on the relationship between corporate ESG performance and corporate performance. ESG score, as an explanatory variable, reflects corporate investment and performance in terms of social responsibility, brand image and sustainable development, and is an important non-financial indicator for measuring a corporate. As China's ESG evaluation system is slow to develop compared to overseas capital markets, the establishment of an ESG system with Chinese characteristics still requires continuous experimentation and improvement. In June 2021, based on 20 years of experience in data processing and analysis, combined with in-depth research on domestic and international ESG standards as well as China's characteristics, Wind Data took the international mainstream ESG system structure as a reference and fully considered the actual development of China's capital market, regulatory policies and ESG practices of listed companies to build a localized characteristic indicator system and officially launched its own brand ESG rating.

② Mediating variables

In this paper, corporate reputation is chosen as a mediating variable to explain the impact of corporate ESG performance on corporate performance. According to stakeholder theory, reputation itself is also a reflection of the comprehensive capabilities of all aspects of a firm, taking into account the perceptions and evaluations of various stakeholders from a long-term perspective and integrating the results of corporate image, self-identification and desired identification. Therefore, this paper draws on the corporate reputation evaluation methods of Jing Ye (2007)^[13], Chang Lijuan and Qu Wen (2015)^[14] and Guan Kaolei and Zhang Rui (2019)^[15], and selects 11 corporate reputation evaluation indicators from multiple perspectives: the ranking of corporate assets, revenue, net profit and value in the industry from the perspective of consumers and society; the asset-liability ratio, current ratio, long-term debt ratio from the perspective of creditors; and the long-term debt ratio from the perspective of shareholders. The corporate reputation score was calculated using principal component analysis and divided into ten groups according to the lowest to highest score, with the corresponding REP values ranging from 1 to 10.

③ Control variables

Concerning previous research literature on corporate performance, we control for these variables in the model to exclude their impact on the data for subsequent analyses, given that there are differences in the impact of different sizes, different capital structures and prior period performance on corporate performance in the current period, and in addition, the impact of different nature of ownership on corporate performance.

(2) Model design

$$ROA = \beta_0 + \beta_1 \times ESG + \beta_2 \times Control + \varepsilon_1 \quad (1)$$

$$REP = \gamma_0 + \gamma_1 \times ESG + \gamma_2 \times Control + \varepsilon_2 \quad (2)$$

$$ROA = \varphi_0 + \varphi_1 \times ESG + \varphi_2 \times REP + \varphi_3 \times Control + \varepsilon_3 \quad (3)$$

Table 1 Variable definition table

Variable types	Name of the variable	Variable symbol	Variable definitions
Explained variable	Enterprise performance	ROA	Net profit/total assets for the current period
		TQ	Closing Price (ex - vested) * Total Share Capital/(Total Assets - Net intangible Assets - Net goodwill)
Explanatory variable	Enterprise ESG performance	ESG	Wind database ESG score data
Control variables	Enterprise scale	Size	The natural logarithm of a firm's total assets at the end
	Enterprise risk	Leverage	Total assets/owner's equity at the end of the period
	Previous period performance	Last Performance	Net profit/total assets of the previous period

In the first step, equation (1) is used to test whether the ESG performance of listed companies is a significant influence on corporate performance. If the coefficient of the ESG variable in equation (1)

is significant, then we can proceed to the next step, but if not, we should stop the mediation effect analysis. In the second step, test the ESG coefficient γ_1 in Formula (2) and the coefficient ϕ_2 of REP variable in Formula (3) respectively, if at least one of the first two tests is insignificant, then the Sobel test must be carried out at the same time, and if the value of the test exceeds the statistic corresponding to the significance level, then the mediation effect is significant, otherwise the mediation effect is not significant. In the third step, when the coefficient of the ESG variable in equation (3) ϕ_1 is still significant, then corporate reputation plays a partial mediating effect; if it is no longer significant, then corporate reputation plays a full mediating effect.

4. Empirical Testing and Analysis

4.1 Descriptive statistics

Table 2 Descriptive statistics

variable	N	mean	median	sd	min	max
ROA	49016	0.0240	0.0170	0.0380	-0.133	0.154
ESG	49016	6.130	6.050	0.740	4.580	8.220
Size	49016	22.40	22.20	1.377	19.99	26.65
Leverage	49016	2.091	1.714	1.211	1.060	8.441
REP	49016	5.500	6	2.872	1	10

Table 1 presents the results of descriptive statistics for each variable for the screened 3275 A-share listed companies, where ROA, ESG, Size, Leverage and Last Performance have been subjected to a 1% tailoring process. For the ESG performance score, the mean value is 6.13, the maximum value is 8.22, the minimum value is 4.58, and the standard deviation is 0.74. The extreme deviation indicates that there are significant differences in ESG performance between the samples, which may be related to the companies' management philosophy or corporate strategy, and the overall score is relatively high, indicating that most companies have gradually increased their attention to ESG philosophy and investment. For company size, the maximum value is 26.65, the minimum value is 19.99 and the mean value is 22.4. There are differences between the samples, but they are not significant. The maximum value of leverage was 8.441 and the minimum value was only 1.06, indicating that the level of risk faced by different listed companies varies greatly and the overall level is low. It is suggested that the sample companies should pay attention to the reasonable allocation of capital structure to improve the overall profitability of enterprises. In terms of ROA, the maximum value is 0.154, while the minimum value is only -0.133, which shows that the performance level of different listed companies is significantly different, and the enterprise value varies, some companies have low operational efficiency for enterprise assets, and may have unreasonable asset allocation, so it is recommended to optimize their management. Overall, the medians of the above variables are all smaller than the overall mean, indicating that more than half of the companies' ESG scores, performance levels, company size and leverage ratios are lower than the overall sample average.

Table 3 Cross-sectional descriptive statistics

variable	N	mean	median	sd	p5	p25	p75	p95
ESG2018	13030	6.058	5.960	0.745	4.970	5.530	6.510	7.470
ESG2019	13100	6.118	6.040	0.729	5.020	5.600	6.570	7.460
ESG2020	13100	6.145	6.070	0.720	5.070	5.640	6.590	7.480
ESG2021	9786	6.225	6.130	0.753	5.130	5.690	6.670	7.690
ESG	49016	6.130	6.050	0.740	5.040	5.610	6.580	7.510

Table 2 shows the descriptive statistics of ESG from March 2018 to September 2021, from which it can be seen that the overall ESG performance of the sample companies has a significant trend of improvement, indicating that with the continuous and in-depth development of the ESG concept, listed companies in China are paying more and more attention to corporate ESG scores, increasing investment in ESG aspects and attaching importance to the cultivation of their sustainable development capabilities, which is closely related to the state and relevant institutions in terms of regulation and This is inextricably linked to the initiatives of the state and relevant institutions in terms of regulation and incentives, and also relies on the continuous improvement of China's ESG evaluation system. The better an enterprise's ESG performance, the more robust and sustainable it can be in creating value for society and achieving the triple win of economic, social and ecological benefits, which is undoubtedly an important evaluation system for the value of each enterprise in the future.

4.2 Correlation analysis

Table 4 Pearson correlation coefficient

	ROA	ESG	Size	Leverage	Last Performance	REP
ROA	1					
ESG	0.080***	1				
Size	-0.00100	0.285***	1			
Leverage	-0.257***	0.008*	0.458***	1		
Last Performance	0.549***	0.058***	-0.011**	-0.265***	1	
REP	0.146***	0.143***	0.436***	0.254***	0.072***	1

Robust t-statistics in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 3 shows that there is a significant positive correlation between ESG performance, financial performance (ROA) and corporate reputation (REP) of listed companies, which tentatively proves that improving ESG performance will increase stakeholders' evaluation of corporate reputation and improve corporate financial performance. The relationship between corporate reputation (REP) and corporate financial performance (ROA) is also significant and positive, indicating that corporate reputation can help to further improve corporate financial performance, which is preliminary evidence of the existence of a mediating effect. The correlation between corporate size (Size), corporate reputation (REP) and equity multiplier (Leverage) is too large and should be excluded from the regressions to prevent the emergence of co-linearity.

4.3 Regression analysis

(1) Full sample regression

The impact of ESG on firm performance and its impact pathway is the focus of this paper. Based on the research hypothesis, using panel regressions, we test the impact of ESG on ROA and use reputation to test for mediating effects.

Table 5 Impact of ESG on financial performance

VARIABLES	(1) ROA	(2) ROA	(3) ROA
ESG	0.0017*** (2.69)	0.0016*** (2.64)	0.0015*** (3.15)
Leverage		-0.0060*** (-6.80)	-0.0044*** (-6.17)
Last Performance			0.2412*** (26.96)
Constant	0.0007 (0.18)	0.0129*** (3.09)	-0.0011 (-0.33)
Year FE	Y	Y	Y
Firm FE	Y	Y	Y
Observations	49,055	49,026	49,016
R-squared	0.138	0.147	0.200
Number of id	3,275	3,275	3,275

Robust t-statistics in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 4 depicts the regression results of ESG performance and corporate performance for 3,275 listed companies, adding fixed effects at the time and firm level. Column (1) shows the regression results when only ESG is used as the independent variable, the coefficient is significantly positive at the 1% level, indicating that there is a significant positive relationship between ESG and corporate performance and that every 1 point increase in ESG leads to a 1.7% increase in the return on assets (ROA) This shows that good ESG performance can significantly increase corporate value and hypothesis 1 is correct. In the table (2) (3), the regression results after adding the control variables in turn, the regression coefficient of ESG is still significant, and it can be observed that the last performance has a significant positive relationship with the current performance of the company, which indicates that the more stable the profitability of the company, the more beneficial to reduce the risk of the company, and the better the last performance, the more beneficial to enhance the confidence of investors. The more stable the level of earnings, the better the confidence of investors. The coefficient between leverage and corporate performance is significantly negative, indicating that the lower the proportion of equity capital and the higher the debt ratio, the greater the risk faced by the enterprise, which will harm the financial performance and enterprise value of the enterprise.

With hypothesis one verified, hypotheses two and three are further tested below through ESG and REP regressions, and ROA and ESG and REP regressions respectively.

Table 6 Impact of ESG on corporate reputation

VARIABLES	(1) REP	(2) REP	(3) REP
ESG	0.1059*** (4.77)	0.1115*** (5.06)	0.1089*** (5.09)
Leverage		0.3325*** (9.12)	0.3559*** (9.28)
Last Performance			3.4952*** (10.52)
Constant	4.9113*** (36.19)	4.2159*** (27.17)	4.0207*** (25.11)
Year FE	Y	Y	Y
Firm FE	Y	Y	Y
Observations	49,055	49,026	49,016
R-squared	0.002	0.035	0.048
Number of id	3,275	3,275	3,275

Robust t-statistics in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 7 Tests for mediating effects of corporate reputation

VARIABLES	(1) ROA	(2) ROA	(3) ROA	(4) ROA
ESG	0.0017*** (2.69)	0.0002 (0.40)	-0.0000 (-0.02)	0.0000 (0.05)
REP		0.0134*** (32.91)	0.0146*** (31.53)	0.0138*** (31.93)
Leverage			-0.0108*** (-8.85)	-0.0093*** (-8.51)
Last Performance				0.1929*** (21.00)
Constant	0.0007 (0.18)	-0.0654*** (-16.18)	-0.0485*** (-11.50)	-0.0567*** (-15.22)
Year FE	Y	Y	Y	Y
Firm FE	Y	Y	Y	Y
Observations	49,055	49,055	49,026	49,016
R-squared	0.138	0.294	0.324	0.358
Number of id	3,275	3,275	3,275	3,275

Robust t-statistics in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 5 further tests the specific mechanism behind ESG enhancing corporate performance. the coefficient of ESG in the regression results between corporate reputation rep and corporate ESG performance is significantly positive, indicating that good ESG performance can bring a positive impact to the company, which in turn improves the corporate reputation rating, verifying hypothesis

2. Table 6 adds the corporate reputation variable to Table 4, and with the help of the test idea of mediating effect model verifies the specific impact mechanism in ESG enhancing the financial performance of the firm. The coefficient of corporate reputation (REP) in Table 6 is significantly positive, indicating that corporate reputation contributes to the improvement of corporate performance, while the coefficient of the core explanatory variable ESG becomes smaller and changes from significant to insignificant, indicating that corporate reputation plays a full mediating effect in the process of ESG performance affecting corporate performance, which shows that ESG mainly plays a role in improving the level of corporate performance by affecting corporate reputation, further verifying Hypothesis 3.

(2) The return of state-owned and private sector groupings

Due to the uniqueness of the nature of enterprises in China, the behavior of state-owned enterprises is more influenced by the awareness and interests of the government, and the business environment, cash flow environment and stakeholder environment of the two types of enterprises are more different, so the following group regressions are conducted on the sample concerning the nature of the enterprises to analyze in depth the different degrees of influence of ESG performance on corporate performance between state-owned enterprises and private enterprises.

Table 8 Regression results for state-owned enterprises

VARIABLES	(1) ROA	(2) REP	(3) ROA
ESG	0.0010 (1.53)	0.0529* (1.65)	0.0004 (0.64)
REP			0.0108*** (17.01)
Leverage	-0.0017*** (-2.64)	0.3022*** (7.35)	-0.0050*** (-5.91)
Last Performance	0.2782*** (17.74)	3.1694*** (4.34)	0.2441*** (15.80)
Constant	-0.0036 (-0.87)	4.6549*** (20.42)	-0.0537*** (-10.14)
Year FE	Y	Y	Y
Firm FE	Y	Y	Y
Observations	16,252	16,252	16,252
Number of id	1,163	1,163	1,163
R-squared	0.265	0.069	0.380

Robust t-statistics in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 9 Private sector regression results

VARIABLES	(1) ROA	(2) REP	(3) ROA
ESG	0.0019*** (2.65)	0.1248*** (4.43)	-0.0001 (-0.08)
REP			0.0156*** (26.81)
Leverage	-0.0073*** (-5.63)	0.4424*** (7.36)	-0.0142*** (-6.96)
Last Performance	0.2206*** (20.08)	3.5014*** (9.51)	0.1661*** (14.12)
Constant	0.0023 (0.42)	3.6954*** (17.16)	-0.0553*** (-9.79)
Year FE	Y	Y	Y
Firm FE	Y	Y	Y
Observations	32,760	32,760	32,760
Number of id	2,269	2,269	2,269
R-squared	0.175	0.048	0.349

Robust t-statistics in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 7 shows the regression results for the selected sample of Chinese SOEs. The data shows that there are 1163 SOEs in the sample, and the regression results in column (1) of Table 7 show a positive ESG coefficient, but with reduced significance. This may be due to the fact that state-owned enterprises are macro-controlled by the state, which itself is the main bearer of social responsibility, and its corporate nature with political factors has won widespread trust from the public, so stakeholders may not give a high evaluation to the corporate reputation of state-owned enterprises just because of their excellent ESG performance. The impact is no longer significant and is absorbed by the specific nature of the state entity itself.

Table 8 shows the regression results for the 2269 private companies in the selected sample. Compared to Table 4, the sign of the ESG coefficient in column (1) of Table 8 remains significantly positive and increases, indicating that private companies have a greater positive impact on financial performance by improving their ESG performance, and compared to Table 6, the ESG coefficient in column (3) changes from positive to negative, indicating that the mediating effect of corporate reputation is more significant in private companies. In summary, non-state-listed companies can improve their ESG performance scores to enhance stakeholders' evaluation of corporate reputation, and ultimately achieve the purpose of improving the level of corporate financial performance. Therefore, private enterprises should face up to the importance of the ESG concept in their corporate strategy, increase investment in environmental, social and corporate governance, make ESG performance a management objective of the company, and make various business decisions based on full consideration of stakeholders.

(3) Return of business size groupings

In the regression process, it was found that the effect of firm size on ESG performance, corporate reputation REP and corporate performance ROA of listed companies were all significant, so subsequent regressions were conducted to group the samples according to firm size to further analyze the impact brought by firm size.

Table 10 Regression results for large enterprises

VARIABLES	(1) ROA	(2) REP	(3) ROA
ESG	0.0005 (0.95)	0.0386** (2.12)	-0.0001 (-0.16)
REP			0.0137*** (26.75)
Leverage	-0.0050*** (-9.03)	0.1607*** (4.56)	-0.0072*** (-10.99)
Last performance	0.2889*** (17.10)	4.4726*** (8.74)	0.2276*** (15.30)
Constant	0.0106*** (3.03)	6.1519*** (38.85)	-0.0737*** (-16.03)
Year FE	Y	Y	Y
Firm FE	Y	Y	Y
Observations	16,341	16,341	16,341
Number of id	1,323	1,323	1,323
R-squared	0.335	0.062	0.470

Robust t-statistics in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 11 Regression results for medium-sized enterprises

VARIABLES	(1) ROA	(2) REP	(1) ROA
ESG	0.0026** (2.44)	0.1259*** (3.51)	0.0000 (0.03)
REP			0.0201*** (30.22)
Leverage	-0.0074*** (-4.05)	0.4266*** (7.19)	-0.0159*** (-7.30)
Last Performance	0.1742*** (11.05)	2.8599*** (7.75)	0.1168*** (8.44)
Constant	0.0028 (0.40)	4.3455*** (18.60)	-0.0843*** (-11.60)
Year FE	Y	Y	Y
Firm FE	Y	Y	Y
Observations	16,340	16,340	16,340
Number of id	1,545	1,545	1,545
R-squared	0.168	0.072	0.400

Robust t-statistics in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 12 Regression results for small-scale enterprises

VARIABLES	(1) ROA	(2) REP	(3) ROA
ESG	0.0022 (1.43)	0.1474** (2.42)	0.0001 (0.06)
REP			0.0143*** (15.36)
Leverage	-0.0041* (-1.67)	0.5393*** (5.43)	-0.0118*** (-3.05)
Last Performance	0.1709*** (11.26)	1.0980** (2.25)	0.1552*** (9.22)
Constant	-0.0079 (-0.74)	2.1228*** (5.25)	-0.0382*** (-3.30)
Year FE	Y	Y	Y
Firm FE	Y	Y	Y
Observations	16,335	16,335	16,335
Number of id	1,378	1,378	1,378
R-squared	0.115	0.051	0.251

Robust t-statistics in parentheses

*** p<0.01, ** p<0.05, * p<0.1

The regression results show that the impact of ESG performance on financial performance is not significant in the large and small groups, while the regression coefficients and mediating effects are significant in the middle group, probably because that large-scale enterprises have a certain number of years of operation, stable profitability and public trust and recognition. This may be due to the fact that large enterprises have been in business for a certain number of years, their profitability is stable, and the public has built up a certain level of trust and recognition, which to a certain extent reduces the risk of the company and gives a good social image to stakeholders, therefore the impact of ESG scores on the financial performance of these enterprises is weaker. Smaller companies, on the other hand, may not place as much emphasis on ESG investment due to their own development needs, and thus their ESG scores are generally low. At the same time, stakeholders focus more on financial indicators and profitability for these smaller companies and pay less attention to non-financial indicators such as ESG, so the positive impact of improving ESG performance on financial performance is not significant.

5. Robustness tests

The above paper conducted a relevant test for the impact of listed companies' ESG performance on their financial performance, but the market value of enterprises is not fully expressed in the financial performance proxy variable return on assets (ROA), so the robustness test uses Tobin's Q as a proxy variable for the market value of enterprises, which can further understand the impact of listed companies' ESG performance on their market value, understand the capital market's corporate ESG performance, and improve the stability of the empirical analysis results.

Table 13 Robustness tests

VARIABLES	(1)	(2)	(3)
	TQ	REP	TQ
ESG	0.0484** (1.97)	0.1089*** (5.09)	0.0427* (1.74)
REP			0.0554*** (4.37)
Leverage	-0.0788*** (-3.19)	0.3559*** (9.28)	-0.0985*** (-3.86)
Last Performance	1.8869*** (8.10)	3.4952*** (10.52)	1.6908*** (7.51)
Constant	1.9613*** (11.90)	4.0207*** (25.11)	1.7355*** (10.08)
Year FE	Y	Y	Y
Firm FE	Y	Y	Y
Observations	48,699	49,016	48,699
Number of id	3,275	3,275	3,275
R-squared	0.072	0.048	0.076

Robust t-statistics in parentheses

*** p<0.01, ** p<0.05, * p<0.1

In this paper, we refer to the method of Wen, Su-Bin (2008) and Zhang, Chang-Jiang (2021) and others to adopt Tobin's Q to replace ROA for robustness testing. The results of the test show that there is still a significant positive relationship between ESG performance and the financial performance of listed companies. After adding corporate reputation as a mediating variable, the coefficient and significance of ESG decrease, but the mediating effect of corporate reputation is still significant and the regression results are still robust. This further validates the previous conclusion that the better the ESG performance of a firm, the higher the stakeholders' perception of the firm's reputation, which in turn has a positive impact on the firm's financial performance.

6. Conclusions and Recommendations of the Study

This paper takes 3,275 companies listed on A-shares from 2018-2021 as a research sample and conducts an in-depth investigation into the relationship between corporate ESG performance, corporate reputation and corporate performance and the specific impact mechanisms, with the following findings: (1) There is a significant positive relationship between ESG performance and financial performance of listed companies (2) Based on the perspective of corporate reputation, the higher the ESG rating of an enterprise, the better it fulfils its responsibilities in environmental protection, social and corporate governance, which will be conducive to the establishment of a higher reputation rating of the enterprise, which in turn will help the enterprise establish a good image in the minds of its stakeholders (3) Corporate reputation plays a significant full mediation effect in the performance enhancement mechanism of ESG performance of listed companies (4) Good ESG performance is conducive to private enterprises to improve their financial performance and the mediating effect of corporate reputation is significant, but the effect on the financial performance of state-owned listed companies is not significant (5) Group regressions on firm size find that the degree of impact of ESG performance on financial performance and the mediating effect of corporate reputation are less significant for small and large firms than for medium-sized firms.

Based on the above conclusions, this paper makes the following recommendations: firstly, enterprises should pay attention to ESG investment, improve ESG performance scores and grades, pay comprehensive attention to multiple stakeholders such as shareholders, consumers, creditors, government and employees when making business decisions, and actively assume social responsibility, which will help improve their reputation evaluation of listed companies and have a positive impact on the financial performance of enterprises; secondly Secondly, the state should actively improve the ESG-related evaluation system and regulatory system, and give certain incentives to companies that take the initiative to make ESG disclosures, so as to encourage more listed companies to integrate ESG concepts into their development strategies and better regulate their own behaviours, which will also help China to further promote sustainable development strategies and facilitate high-quality economic development and the upgrading and transformation of industrial structures; thirdly, stakeholders should pay more attention to the ESG performance of listed companies, which will also help guide enterprises not to focus only on the improvement of financial indicators, but also pay more attention to the non-financial value indicators of enterprises, improve the comprehensive evaluation system of enterprises, help listed companies develop in a comprehensive and harmonious way with society, the environment and corporate governance, influence each other, promote each other, enhance the sustainable development potential of enterprises while reducing the risks of investors, and form a multi-win cooperation The new situation.

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