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The Impact of Digital Transformation on ESG: Evidence from the Listed Companies in China

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Abstract: In the digital economy era, the influence of digital transformation on enterprises' ESG performance has received extensive attention. This article selects Chinese A-share listed companies from 2010 to 2022 as samples, constructs a digital transformation index encompassing five dimensions: artificial intelligence, big data, cloud computing, blockchain, and digital technology application, and employs the ESG rating data from Huazheng to measure enterprises' ESG performance. The research discovers that digital transformation significantly and positively affects enterprises' ESG performance. Particularly when external supervision is relatively weak, its promoting effect is more pronounced. Digital transformation enhances enterprises' risk-taking capacity by optimizing resource allocation, strengthening green technology innovation, and improving the quality of information disclosure, thereby elevating enterprises' value creation ability. This article expands the literature research on the influencing factors of enterprises' ESG performance from the micro level of digital transformation, which holds significant importance for improving the digitalization strategies and governance systems of listed companies, further standardizing corporate governance, and enhancing enterprise value.

Keywords: digital transformation, ESG performance, Corporate behavior, Corporate Governance

1. Introduction

In the digital economy era, digital transformation has emerged as a crucial breakthrough for the innovation and transformation of enterprises worldwide. As emerging digital intelligent technologies like artificial intelligence, blockchain, cloud computing, and big data continue to surface, digital transformation is not merely related to the enhancement of enterprises' economic benefits but is also closely intertwined with their social responsibility and sustainable development. Against this backdrop, Environmental, Social, and Governance (ESG) performance, as a key metric for gauging the comprehensive value of enterprises, has garnered unprecedented attention. ESG performance embodies the comprehensive considerations of environmental protection, social responsibility, and corporate governance by enterprises while pursuing economic value and serves as a significant booster for achieving high-quality and sustainable development.

Digital transformation refers to the process where enterprises incorporate advanced digital technologies in crucial aspects such as production, management, and research and development, with

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the aim of enhancing efficiency and innovation capabilities. In the ESG domain, digital transformation is perceived as a vital means to enhance an enterprise's ESG performance. On the one hand, digital transformation can offer technical support and a data basis for an enterprise's ESG practices. By increasing information transparency and operational efficiency, it promotes better fulfillment of environmental and social responsibilities by enterprises and elevates the level of corporate governance. On the other hand, the implementation of ESG concepts also provides direction and impetus for an enterprise's digital transformation, driving enterprises to attach greater importance to long-term sustainable development and the fulfillment of social responsibilities while pursuing economic benefits. Thus, investigating how digital transformation influences an enterprise's ESG performance is not only of great significance for comprehending the comprehensive impact of digital transformation but also holds practical value for promoting enterprises to achieve sustainable development.

To delve into the influence of digital transformation on the ESG performance of enterprises, the article utilizes data from Chinese A-share listed companies from 2010 to 2022. It develops a digital transformation index comprising five dimensions: artificial intelligence, big data, cloud computing, blockchain, and the application of digital technologies. The study then incorporates the ESG rating data from Huazheng to evaluate the ESG performance of these enterprises. Through quantitative analysis methods, the article systematically investigates the impact effect, heterogeneity analysis, mediating mechanism, and practical value of digital transformation on the ESG performance of enterprises. The research results indicate that an increase in the level of digital transformation has a significant positive effect on the ESG performance of enterprises. Particularly in an environment with weaker external supervision, the promoting effect is more pronounced, suggesting that digital transformation may play a complementary role between internal development and external governance. Additionally, digital transformation enhances the risk-bearing capacity of enterprises by optimizing resource allocation, strengthening green technology innovation, and improving the quality of information disclosure, thereby facilitating the creation of enterprise value.

2. Literature Review

2.1. The Influencing Mechanism of Digital Transformation

As of now, research on the influencing factors of digital transformation has extended from the micro level to the macro level, encompassing three aspects: corporate behavior, market behavior, and macroeconomic behavior.

From the perspective of enterprise behavior, scholars have conducted impact effect analyses of digital transformation in aspects such as efficiency innovation, business models, data-driven, and internal governance. Regarding efficiency innovation, digital transformation has significantly enhanced the production and operational efficiencies of enterprises by introducing emerging technologies like cloud computing, big data, and artificial intelligence. This enables enterprises to respond more promptly to market changes and enhance the innovation capabilities of products and services. In the aspect of business models, digital transformation urges enterprises to shift from merely selling products to offering services and solutions, achieving the evolution from value chains to value networks, thereby better meeting customer demands, obtaining competitive advantages, and enhancing the ability of resource integration [1]. Regarding data-driven decision-making, digital transformation enables enterprises to collect and analyze a large amount of data, improving the accuracy and efficiency of decision-making, reducing uncertainty, and enhancing the efficiency of resource utilization and the quality of decisions. With respect to the internal structure, digital transformation improves the internal governance of enterprises by integrating digital technologies into their development and enhances management levels and operational efficiency.

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From the perspective of market behavior, scholars have carried out impact effect analyses of digital transformation in terms of market structure, industrial upgrading, etc. In terms of market structure, digital transformation has thoroughly disrupted the industrial pattern that traditional enterprises have operated for many years, giving rise to new business models, transaction methods, cooperation patterns, and even competition approaches. Moreover, digital transformation has promoted industrial division of labor by reducing information asymmetry and transaction costs, enhancing the degree of homogeneous competition, intensifying price competition, and thereby influencing the market structure. Regarding industrial upgrading, digital transformation has triggered alterations in all aspects of economic activities, including enterprise strategies, design, R&D, production, manufacturing, and organizational methods, by integrating information, computing, communication, and connection technologies, thereby improving the process of value creation for enterprises [2]. The application of cloud computing and big data has enabled enterprises to manage resources more effectively, reduce transaction costs, and thereby enhance their market position.

From the perspective of macroeconomic behavior, scholars have carried out impact effect analyses of digital transformation in aspects such as economic growth and resource allocation efficiency. Regarding economic growth, digital transformation promotes the integration of knowledge and technology, propels the transformation of innovation patterns, endows consumers with ubiquitous information acquisition and social capabilities, thereby altering consumer behavior and further influencing business activities, infusing new impetus into economic growth. In terms of resource allocation efficiency, digital transformation is conducive to guiding various factors of production to converge towards advanced productivity and achieving the optimal state of factor allocation across industries and regions [3]. Digital transformation enables enterprises to convert demand information in the market into data and enables the flow of this data within and outside the enterprise, driving enterprises to create new products purposefully, thereby optimizing the efficiency of resource allocation.

2.2. Factors Affecting ESG

As of now, studies on the influencing factors of ESG can be classified into internal and external factors respectively. Based on internal factors, scholars have conducted impact analyses on ESG from aspects such as enterprise strategy, ownership structure, and corporate governance. Regarding enterprise strategy, the aggressiveness of enterprise strategy is positively correlated with ESG performance, that is, the more aggressive the strategy, the more inclined the enterprise is to enhance its ESG performance [4]. Concerning the ownership structure, state-owned enterprises, under the oversight of the State-owned Assets Supervision and Administration Commission, are mandated to adopt ESG practices in accordance with national policies. Moreover, an increase in the state capital share within private enterprises will incentivize these firms to focus more on ESG practices [5]. In terms of corporate governance, internal controls can mitigate the short-termism of management, thereby enhancing the ESG performance of the enterprise [6]. Additionally, as the primary decision-makers in enterprise operations and management, the characteristics of senior executives can significantly influence the ESG performance of the enterprise.

Based on external factors, scholars have carried out impact effect analyses on ESG from aspects such as market participants, economic environment, and institutional environment. Concerning market participants, when making investment decisions, investors are increasingly attaching importance to the ESG performance of target companies, which helps alleviate the financing constraints of enterprises and enhance information transparency [7]. In terms of the economic environment, the optimization of the business environment can significantly enhance an enterprise's ESG performance. Government measures such as environmental protection policies, fiscal subsidies, and green credit can motivate enterprises to invest in environmental protection and social

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responsibility [8]. In the institutional environment, environmental protection taxes and environmental regulations can effectively promote an enterprise's ESG performance [9]. Additionally, the trading interconnection mechanism of the stock market has also been discovered to significantly improve the ESG performance of listed companies.

2.3. The Mediating Mechanism of Digital Transformation and ESG

To date, the intermediary mechanisms linking digital transformation and ESG can be summarized from three levels of corporate behavior, market behavior, and social behavior.

Based on the enterprise behavior, scholars have interlinked digital transformation and ESG in terms of resource allocation, green technologies, and the quality of information disclosure. Regarding resource allocation, digital transformation has primarily raised the cost addition rate of enterprises with low addition rates and narrowed the gap between enterprises with high addition rates and those with low addition rates, making the distribution of addition rates among different enterprises in the economy more concentrated. In the area of green technologies, digital transformation provides sufficient resource guarantees for green technology innovation. Enterprises with good ESG performance tend to pay greater attention to sustainable development and environmental protection and possess stronger technological innovation capabilities. From the perspective of stakeholder theory, enterprises with good ESG performance are able to attract more attention from investors. The external supervision pressure brought about by this attention prompts enterprises to make more cautious and scientific decisions, thereby enhancing investment efficiency. In terms of the quality of information disclosure, Digital transformation can assist enterprises in collecting, organizing and disclosing ESG-related information more proficiently, enhancing the authenticity, transparency and accuracy of information disclosure.

Based on the market behavior, scholars have interlinked digital transformation and ESG in terms of risk control, regulatory levels, etc. In the aspect of risk control, digital transformation can utilize advanced computer technologies and analytical techniques to assist companies in better coping with changes and uncertainties and provide support for ESG risk management. The application of artificial intelligence and big data technologies enables enterprises to monitor environmental data in real-time, respond promptly and handle environmental incidents, thereby effectively reducing ESG-related risks. Additionally, digital transformation improves the communication efficiency and collaborative ability within organizations, heightens employees' awareness and consciousness of risks, and strengthens the ability to identify and address ESG risks. In terms of the regulatory level, digital transformation offers more effective tools and means for market regulation. Relying on advanced digital technologies to conduct credit risk classification management for market entities can establish a multi-dimensional and all-round credit risk assessment system, implement differentiated regulatory measures, and effectively restrain the occurrence of illegal and non-compliant behaviors.

Based on the social behavior aspect, scholars have established a connection between digital transformation and ESG in terms of capital financing constraints. Enterprises that actively implement the ESG development concept can significantly enhance their capacity to obtain social capital[10]. Enterprises with favorable ESG performance will attract more attention from the media and the public, and be subject to stronger external supervision and constraints, compelling the management to be more cautious when making investment and business operation decisions and reducing the business risks of the enterprises. Meanwhile, it can also lower the business risks of enterprises through information supervision mechanisms and reputation insurance mechanisms, enhance the confidence of creditors in investing in enterprises, reduce the risk premium compensation for enterprises, and thereby reduce the debt financing costs of enterprises [11], providing cash flow guarantees for innovation projects.

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3. Data Definition

This article mainly focuses on the influence of digital transformation on corporate ESG. To verify Hypothesis 1, the following empirical model is constructed:

$$ESG_{it} = \alpha_0 + \alpha_1 * DTD_{A_{it}} + \gamma_i + \delta_t + X_{it} + \varepsilon_{it} \quad (1)$$

(1) Explanatory Variable: Digital Transformation A. Drawing on the research of Wu Fei [12], the word frequencies related to 76 aspects of digitalization in five dimensions—artificial intelligence technology, big data technology, cloud computing technology, blockchain technology, and the application of digital technology—were statistically analyzed.

(2) Explained Variable: (ESG Index) Comprehensive Score. The ESG rating data provided by Huazheng Index is characterized by its proximity to the Chinese market, broad coverage, and high timeliness. Consequently, the ESG ratings and individual dimension scores of the constituent stocks of the CSI 300 Index, as evaluated by Huazheng Index, serve as a benchmark for assessing the ESG performance of companies. The ESG performance of the CSI 300 Index constituents is categorized into nine grades, ranging from the highest to the lowest: AAA, AA, A, BBB, BB, B, CCC, CC, and C. These grades, from C to AAA, are sequentially assigned values from 1 to 9.

(3) Control Variables: In line with relevant studies on the factors influencing ESG [13], this article incorporates several control variables. Lev represents the asset-liability ratio, calculated as the ratio of total liabilities at the end of the period to total assets at the end of the period. ROA denotes the return on total assets, determined by dividing EBIT by total assets at the end of the year. ROE stands for the return on equity, computed by dividing net profit at the end of the period by shareholders' equity at the end of the period. Age indicates the number of years since the company's listing, calculated as ln (current year - year of listing + 1). Dual reflects the duality of the CEO and chairman roles, coded as 1 if the CEO also serves as the chairman, and 0 otherwise. TOP10 measures the equity concentration, assessed by the shareholding ratio of the top ten shareholders.

(4) γ_i, δ_t represent time and individual fixed effects, which can effectively solve the problem of data omission that varies with time and individuals, and effectively mitigate endogeneity.

3.1. Sample Selection and Data Sources

The article selects the data of A-share listed companies from 2010 to 2022 as the research sample. Based on the research requirements, the following exclusions are carried out: Exclude listed companies in the financial and insurance industries; Exclude samples with missing variables; Exclude samples with abnormal Roa. Ultimately, 5,265 companies with 43,000 observations are obtained, which belong to unbalanced panel data.

The data source for the explanatory variable, digital transformation, primarily studied in this article is as follows: Annual reports of listed companies from 2010 to 2022 were retrieved from the Great Tide Information Network and transformed into panel data. The five dimensions of digital transformation—artificial intelligence technology, big data technology, cloud computing technology, blockchain technology, and the application of digital technology—were reviewed and organized. To ensure data accuracy, post-2010 data were cross-referenced and corrected using the CSMAR database. All other data necessary for the study were sourced from the CSMAR and Wind databases. The article utilizes Stata15.0 software for data analysis. To reduce the influence of outliers on model accuracy, all continuous variables underwent 1% winsorization at both the upper and lower tails. Furthermore, the standard errors of all OLS regression results were adjusted using company-level clustering.

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3.2. Descriptive Statistics

The descriptive statistics for the primary variables are displayed in Table 1. The mean comprehensive score of the sample enterprises is 72.94223, with the minimum score being 36.62 and the maximum score being 92.93. This suggests that although the overall ESG scores of the enterprises are relatively high, there is considerable variability among them.

The averages of digital transformation degrees A and B are relatively low, and the standard deviations are large, suggesting that the digital transformation degrees of a few enterprises are significantly higher than those of other enterprises. The debt-to-asset ratio (Lev), return on total assets (ROA), return on equity (ROE), years of listing (Age), dual role (Dual), and the shareholding ratio of the top ten shareholders (TOP10) are control variables, respectively representing the influence of the digital transformation degree on the ESG comprehensive score under different variables.

Table 1: Descriptive Statistics of the Main Variables

Variable	Obs	Mean	Std.dev.	Min	Max
Comprehensive Score	40,554	72.94223	5.577141	36.62	92.93
$DTD_{A\,it}$	42,978	13.01575	33.11222	0	589
$DTD_{B\,it}$	42,978	40.1779	68.83638	0	1094
Lev	40,424	.4397281	.950948	-.194698	178.3455
Roa	40,424	.0407614	.1729407	-9.116924	20.78764
Roe	40,424	.0435845	1.210542	-174.8947	24.26465
Age	40,424	2.904781	.3599704	0	4.174387
Dual	40,424	.286983	.4523592	0	1
Top10	40,424	.589042	.1573332	.013103	1.0116

4. Empirical Results

4.1. Main Regression Analysis

Columns 1 and 2 of Table 2 display the OLS regression results for Digital Transformation A. The estimated coefficient for Digital Transformation A is 0.0051 and is statistically significant at the 1% level, indicating a strong positive relationship between Digital Transformation A and the overall ESG index score of the enterprise.

The regression results for the control variables are generally in line with expectations: The estimated coefficient of the asset-liability ratio (Lev) is significantly negative, indicating that a higher debt level in an enterprise is associated with a lower ESG comprehensive score. The estimated coefficient of the return on total assets (ROA) is positive, suggesting that enterprises with higher EBIT tend to have higher ESG comprehensive scores. The estimated coefficient of profitability (ROE) is positive, indicating that enterprises with stronger profitability may be more inclined to engage in risk-taking. The estimated coefficient of listing age (Age) is significantly negative, suggesting that enterprises with longer listing periods may pay less attention to ESG. The estimated coefficient of duality (Dual) is positive, indicating that enterprises where the CEO and chairman are the same person are more likely to prioritize ESG. The regression coefficient of the shareholding ratio of the top ten shareholders (TOP10) is significantly positive, indicating that a higher shareholding ratio of the top ten shareholders aligns their interests more closely with the company's decisions, leading to greater attention to the ESG comprehensive score.

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Table 2: Main Regression Analysis & Robustness Analysis

Variable	Comprehensive Score	Variable	Comprehensive Score
DTD_{Ait}	0.0051*** (0.0012)	DTD_{Bit}	0.0047*** (0.0006)
Lev	-0.1318*** (0.0244)	Lev	-0.1315 (0.0244)
Roa	0.6555 (0.1322)	Roa	0.6603 (0.1321)
Roe	0.0599* (0.0173)	Roe	0.0604* (0.0173)
Age	-1.1161*** (0.3146)	Age	-1.1374 (0.3144)
Dual	0.0537* (0.0728)	Dual	0.0481** (0.0728)
Top10	3.8837 (0.2740)	Top10	3.9296 (0.2737)
Individual-fixed Effects	Yes	Individual-fixed Effects	Yes
Time-Fixed Effects	Yes	Time-Fixed Effects	Yes
—cons	73.9236 (0.9736)	—cons	73.8351 (0.9736)
R2	0.5475	R2	0.9732

4.2. Robustness Analysis B

To validate the robustness of the research outcomes, the article was based on the initial analysis and drew upon the methodology of Zhao Chenyu [14]. Specifically, frequency analyses were conducted on 99 digitalization-related terms in the four dimensions of digital technology application, internet business model, intelligent manufacturing, and modern information system. A new metric for digital transformation was introduced, and the hypothesis was reevaluated. The robustness test results presented in columns 3 and 4 of Table 2 are in line with the main regression results presented in columns 1 and 2 of Table 2, both strongly supporting the hypothesis that digital transformation significantly enhances the comprehensive ESG index score of enterprises.

4.3. Heterogeneity Analysis

To further investigate whether the impact of digital transformation on ESG comprehensive score has regional differences, the article uses heterogeneity analysis method to conduct regression analysis separately for enterprises in the east, central, west, and northeastern regions.

The results reveal that the degree of digital transformation demonstrates a significantly positive correlation with the ESG comprehensive score in all four regions. Among them, the significance level is slightly lower in the northeastern region, suggesting that there might be variations in the facilitating effect of digital transformation on the ESG performance of enterprises across different regions. The asset-liability ratio (Lev) shows a significant negative correlation with the ESG score in all regions, indicating that a high leverage ratio might have an inhibitory effect on the ESG performance of enterprises. The return on total assets (ROA) is significantly negatively correlated in the central and northeastern regions, and the enterprise profitability (ROE) is significantly positively correlated in the western region. The listing age (Age) is significantly negatively correlated in all regions except

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the northeastern region, suggesting that older enterprises lag in ESG practices. The dual position (Dual) is significantly negatively correlated in all regions except the northeastern region.

Table 3: Heterogeneity Analysis

Variable	East	Central region	West	Northeast
DTD_{Ait}	0.0070***	0.0081***	0.0081***	0.0222**
	(0.0016)	(0.0038)	(0.0065)	(0.0120)
Lev	-2.0988***	-0.0906***	-0.0292***	-4.2537***
	(0.1663)	(0.0312)	(0.4371)	(0.9055)
Roa	0.4354	-0.0292***	2.1620	-0.0323***
	(0.2559)	(0.3329)	(1.0346)	(0.2002)
Roe	0.2418	1.1216	0.0338**	0.5380
	(0.0586)	(0.3095)	(0.0231)	(0.2062)
Age	-1.4436***	-0.7884***	-3.4962***	13.0407
	(0.4495)	(1.1371)	(1.3749)	(3.3498)
Dual	-0.0068***	-0.0257***	-0.1429***	0.5969
	(0.1055)	(0.2474)	(0.2825)	(0.4925)
Top10	3.3492	2.1575	2.3829	1.3579
	(0.4402)	(0.9121)	(1.0071)	(1.7655)
Individual-fixed Effects	Yes	Yes	Yes	Yes
Time-Fixed Effects	Yes	Yes	Yes	Yes
Constant	75.5823	73.5501	80.5880	110.4761
	(1.3719)	(3.4689)	(4.1710)	(10.2572)
R2	0.5252	0.4930	0.5609	0.5352

4.4. Mediation Analysis

$$ESG_{it} = \alpha_0 + \alpha_1 * DTD_{A_{it}} + \gamma_i + \delta_t + X_{it} + \varepsilon_{it} \quad (2)$$

$$M_{it} = \alpha_0 + \alpha_1 * DTD_{A_{it}} + \gamma_i + \delta_t + X_{it} + \varepsilon_{it} \quad (3)$$

To further explore, the article carried out a mediation effect analysis on the relationship between the degree of digital transformation and the ESG score of enterprises, with a special focus on the role of risk-taking capacity as a potential mediating variable. The results indicate that the degree of digital transformation has a significant positive influence on risk-taking capacity, suggesting that digital transformation may enhance the ESG performance of enterprises by strengthening their risk-taking capacity.

Table 4: Mediation analysis

Variable	risk-taking capacity
DTD_{Ait}	0.0001***
	(0.0000)
Lev	-0.0009***
	(0.0021)
Roa	-0.0496**
	(0.0037)
Roe	0.0008***
	(0.0004)

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Table 4: (continued).

Age	0.0011*** (0.0031)
Dual	0.0003*** (0.0007)
Top10	-0.0209** (0.0028)
Individual-fixed Effects	Yes
Time-Fixed Effects	Yes
Constant	0.0372** (0.0095)
R2	0.3705

5. Conclusion and Suggestions

Digital transformation is a key driver for the enhancement of enterprises' ESG performance. Its in-depth implementation is bound to exert significant influences on enterprises' environmental responsibility, social responsibility, and corporate governance, and thereby affect their sustainable value creation and social influence. The article takes Chinese A-share listed companies from 2010 to 2022 as samples. Based on the theoretical basis of the relationship between digital transformation and ESG performance, and focusing on the perspective of enterprise innovation and transformation in the digital economy era, by utilizing the multi-dimensional data set of digital transformation extracted from annual reports, it conducts theoretical explanations, data analyses, and verifications on the paths, mechanisms, and practical values of how digital transformation affects enterprises' ESG performance. There is a significant positive correlation between digital transformation and the ESG comprehensive score. Digital transformation promotes an enterprise's performance in ESG by enhancing internal information transparency and operational efficiency. When external oversight is relatively weak, the positive impact of digital transformation on ESG performance becomes more evident, suggesting that it can enhance ESG performance by reinforcing internal governance and complementing the role of external governance. Digital transformation can improve ESG performance by increasing risk tolerance, highlighting its crucial role in boosting value creation. The study examines the impact of digital transformation on ESG performance and constructs quantitative indicators of digital transformation, offering valuable insights into the role of digital transformation in the sustainable development of enterprises.

The research outcomes of the article, while expanding the scope of the existing theoretical research, also offer references for decision-making by stakeholders at different levels. At the government regulatory level: On the one hand, the government should attach significance to the role of digital transformation in enhancing corporate ESG performance and formulate relevant policies to motivate enterprises to adopt advanced digital technologies and promote their fulfillment of responsibilities. On the other hand, the government should optimize the market environment and governance structure to provide institutional support for enterprises' digital transformation, ensuring that enterprises can achieve sustainable development while pursuing economic benefits. At the micro-level of enterprises: Enterprises are required to incorporate digital transformation into their strategic planning and attach importance to the investment in digital technologies so as to enhance information transparency and operational efficiency. Furthermore, enterprises should strengthen internal governance and improve the management level to enhance their competitiveness in ESG performance. Moreover, enterprises should utilize digital means to strengthen risk management and promote sustainable value creation. The social public should consider the extent of digital transformation of enterprises as an important

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indicator for assessing their ESG performance and long-term investment value, and offer support to enterprises that have performed prominently in digital transformation, thereby promoting the market to develop in a sustainable and responsible direction through consumption choices.

References

[1] *Eggers J P, Park K F. Incumbent adaptation to technological change: The past, present, and future of research on heterogeneous incumbent responseJJ. Academy of Management Annals, 2018, 12(1): 357–389.*

[2] *Sun Xinbo, Zhang Yuan, Wang Yongxia, et al. Digital Value Creation: Research Framework and Prospects [J]. Foreign Economics and Management, 2021, 43(10): 35-49. DOI: 10.16538/j.cnki.fem.20210322.401.*

[3] *Ning Chaoshan. Digital Economy, Factor Marketization and High-Quality Economic Development [J]. Changbai Journal of Social Sciences, 2021, (1): 114-120. DOI: 10.196/49/j.cnki.cn22-1009/d.2021.01.015.*

[4] *Wang Xiaohong, Zhao Meilin, Zhang Shaopeng, et al. The Moderating Effect of Firm Life Cycle on the Relationship between Strategic Pace and Digital Transformation and ESG Performance [J]. Soft Science, 2024, 38(3): 77-84. DOI: 10.13956/j.ss.1001-8409.2024.03.11.*

[5] *Wei Yanpeng, Mao Zhihong, Wang Haoyu. The Impact of State-owned Capital Participation on ESG Performance of Private Enterprises [J]. Journal of Management Studies,,2023,20(07):984-993.*

[6] *Guo Melan, He Yifan, Niu Jianye. Internal Control, Media Coverage on the Internet and Corporate ESG Performance [J]. Journal of Management Studies, 2023, 36(03): 103-119. DOI: 10.19808/j.cnki.41-1408/F.2023.0027.*

[7] *Chen Xiaoshan, Liu Hongduo. Institutional Investors' Holdings and Corporate ESG Performance [J]. Financial Forum, 2023, 28(09): 58-68. DOI: 10.16529/j.cnki.11-4613/f.2023.09.004.*

[8] *Shi Fan, Wang Keming. The Environmental Protection Assessment System for Local Government Officials and the ESG Performance of Listed Companies [J/OL]. Financial and Economic Research, 1-17 [2024-11-07]. http://kns.cnki.net/kcms/detail/21.1096.F.202*

[9] *Huang Dajiu, Xie Huoba, Zou Mengting. The Relationship Between Environmental Regulation and Corporate ESG Performance under the Background of Carbon Neutrality - An Empirical Study Based on Macro and Micro Mechanisms [J]. Journal of Shanxi University of Finance and Economics, 2023, 45(10): 83-96. DOI: 10.13781/j.cnki.1007-9556.2023.10.007.*

[10] *Li Zengfu, Feng Liuhua. Corporate ESG Performance and Access to Trade Credit [J]. Journal of Finance and Economics, 2022, 48(12): 151-165. DOI: 10.16538/j.cnki.jfe.20220815.022.*

[11] *Xu Wenjing, Cheng Wenyu, Du Mucong. The Relationship Between Carbon Information Disclosure, Financing Cost and Corporate Financial Performance [J]. Price Theory and Practice, 2022, (6): 156-160. DOI: 10.19851/j.cnki.CN11-1010/F.2022.06.306.*

[12] *Wu Fei, Chang Xi, Ren XiaoYi. Government-driven innovation: fiscal science and technology spending and enterprise digital transformation [J]. Financial Research, 2021, (01): 102-115. DOI: 10.19477/j.cnki.11-1077/f.2021.01.008.*

[13] *Zhang Min, Tong LiJing, Xu HaoRan. Social networks and corporate risk-taking - based on empirical evidence from listed companies in China [J]. Management World, 2015, (11): 161-175.Faccio, M., M. T. Marchica, and R. Mura. Large Shareholder Diversification and Corporate Risk -taking[J]. Review of Financial Studies, 2011,24(11):3601-3641.*

[14] *Zhao Chenyu, Wang Wenchun, Li Xuesong. How Digital Transformation Affects Firm Total Factor Productivity [J]. Journal of Finance and Trade Economics, 2021, 42(07): 114-129. DOI: 10.197/95j.cnki.cn11-1166/f.20210705.001.*