Original Paper

Research on the Impact of Digital Transformation on Enterprise ESG Performance: Based On the Perspective of Enterprise Dynamic Capability

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Abstract

At a time when more attentions are paid to green environmental protection at home and abroad, enterprises need more driving forces to do ESG practices. Digital transformation with the help of digital technology, this new quality productivity provides enterprises with a new way of thinking and power to enhance ESG performance. Explore whether digital transformation can enable ESG performance of enterprises, so as to provide certain practical significance for enterprises to firmly carry out digital transformation, improve ESG performance of enterprises, and obtain new sustainable competitive advantages of enterprises. This paper focuses on the empirical study of the relationship between digital transformation and ESG performance of Shanghai-Shenzhen A-share listed multinational enterprises from 2011 to 2022, and explores the mechanism of digital transformation affecting ESG performance from the perspective of dynamic capabilities of enterprises. The results show that the degree of digital transformation has a positive relationship with ESG performance. Based on the research conclusions, the following suggestions are put forward: At the government level, the government should provide strong policy guidance and resource support for the promotion of digital transformation, solve difficulties and dredge blocked points. Continue to deepen the understanding of ESG concept, expand the influence of ESG, guide enterprises to take the initiative to practice ESG concept, cope with the voice of foreign countries in the ESG field, and support the acceleration of the construction of ESG rating system with unique Chinese characteristics. At the enterprise level, enterprises should integrate digital transformation into corporate strategy and management activities, actively seize the opportunities of digital development to achieve green transformation, improve the quality of internal control, and lay a good foundation for sustainable development of enterprises.

Keywords

ESG, Digital transformation, Dynamic capability, Mediating effect

1. Introduction

Worldwide, countries are paying increasing attention to environmental and ESG governance. The UK Financial Conduct Authority (FCA) has published the Sustainable Disclosure Requirements for Investment Products (SDR), including anti-greenwashing rules and labelling requirements for financial products, to improve transparency and trust in the sustainable investment market. At the same time, the implementation of SDR rules will promote the sustainable characteristics of enterprises' products and services and reduce the risk of greenwashing. The EU continues to play a leading role in the area of sustainability reporting. Sustainable finance strategies will play an important role in the EU's European green deal policy objectives. Regulatory initiatives such as the Corporate Sustainability Reporting Directive (CSRD) and the Sustainable Financial Disclosure Directive (SFDR) require companies and financial institutions to disclose significant risks and opportunities posed by social and environmental issues, as well as the human and environmental impacts of corporate activities, in order to increase transparency for investors and other stakeholders. It also improves the transparency and consistency of ESG information disclosure. In addition, under the policy objectives of the European Green Agreement, companies with import and export trade with the EU may face constraints related to sustainable policies, including new energy vehicles, new energy batteries, clothing industries, etc. ESG policies in the United States show regional differences. Some states, such as California, have mandatory climate disclosure rules. New climate disclosure rules announced by the US Securities and Exchange Commission (SEC) require public companies to enhance climate-related disclosures to meet the needs of investors and understand the financial impact of climate risks on their operations. The implementation of this new regulation will significantly improve the transparency of climate information and facilitate investors' assessment and management of corporate climate risks. These requirements will undoubtedly have an impact on Chinese products exported to these countries.

Digital economy is the future development direction of the global economy and an important driving force for world economic development. In recent years, with the rapid progress of science and technology, digital transformation has become a key node in the current era, among which, the application of cutting-edge technologies represented by artificial intelligence, blockchain, cloud computing and big data technology has triggered subversive changes in the traditional economy and greatly expanded the development space of the digital economy. Digital transformation can provide a strong impetus for the high-quality development of our economy: First, digital transformation deeply integrates business with the new generation of information technology, makes better use of various production factors for production, and improves enterprise production efficiency. Secondly, by strengthening the information interaction between departments, digital transformation optimizes the operation process and decision-making efficiency of enterprises, and improves the operation efficiency and governance level of enterprises. Digital transformation also improves the innovation performance of enterprises and provides strong support for the construction of core competitiveness of enterprises.

2. Literature

2.1 Digital Transformation

With the rapid development of the digital economy, the integration of digital technology and the daily operation and production activities of enterprises has gradually increased, playing an increasingly important role. Enterprise digital transformation is to integrate a variety of digital technologies into the operation and management activities of enterprises, and realize business process transformation,

business model innovation and enterprise value enhancement with the help of digital technologies, so as to enhance its competitive advantage in the future market. Westerman et al. (2014) defined the connotation of digital transformation from the perspective of the application scope of digital technology, and believed that digital transformation means that enterprises combine digital technology with their own production business to achieve product quality improvement and production efficiency optimization (Westerman, Bonnet & Mcafee, 2014). Scott (2019) also believes that enterprise digitalization means that enterprises use advanced technologies such as artificial intelligence and cloud computing to improve their current business conditions. Digital transformation is a comprehensive and all-round change of an enterprise, not only the optimization of its own business and the improvement of management efficiency, but also the impact on the business philosophy, corporate culture, organizational structure and other aspects of the enterprise (Scott, S., Hughes, P., Hodgkinson, I. et al., 2019, pp. 119717-119717). Chen Xiaohong et al. (2022) believe that digital transformation has the characteristics of all data elements, integrated enterprise management and lean business processes (Chen, X. H., Tang, X. B., Liang, W. et al., 2021, pp. 5-12). Wang Chunying et al. (2021) expand the connotation of digital transformation and believe that industrial digitalization and digital industrialization are two aspects of digital transformation. First, digital technology is deeply integrated with traditional industries, and the production process, business model and management mode are digitized to achieve industrial transformation and upgrading. The second is the development of new industries based on digital technology, providing digital products and services, and giving birth to new business models (Wang, C. Y. & Chen, H. M., 2021, pp. 29-31).

2.2 Enterprise ESG Performance

ESG is derived from the first letters of the English words "Environment", "Social" and "Governance". As an emerging concept, ESG has been rapidly disseminated and developed in China in recent years. In particular, a series of ESG policies and documents have been issued at the national level, which has played a crucial role in the vigorous development of ESG in China. The Development Research Center of The State Council has also given a definition of ESG: ESG is a value about how environment, society and governance coordinate development. In the international asset management industry, ESG has become a mainstream investment concept and investment strategy. The meaning of E in ESG: E stands for environment, which mainly emphasizes that enterprises should pay attention to environmental protection in the production and operation process. Considerations include: carbon emissions, waste management, energy use, natural resource consumption, climate change and biodiversity; The meaning of S in ESG: S stands for society and focuses on the social responsibility that enterprises should undertake. Factors to consider include: employee safety and health, compensation and welfare, management, and the enterprise's impact on the upstream and downstream supply chain, product safety and quality, community relations, etc.; The meaning of G in ESG: G stands for governance, emphasizing that enterprises should improve the level of governance. The main areas involved include: board structure, executive compensation, corporate organizational structure, risk management, internal control, information disclosure, anti-corruption, anti-unfair competition and business ethics.

2.3 Dynamic Capability

The dynamic capability theory was originally developed from the firm capability theory, which is the most advanced field of strategic management research. As an important component of enterprise organizational capabilities, dynamic capabilities were first formally proposed by Teece et al. (1997)

and defined as the ability to help enterprises adapt to dynamic changing environments by reconstructing and integrating resources. Dynamic capability refers to the ability of an organization to integrate internal and external resources to cope with changes, which is the basis for a company to maintain its core competitiveness (Teece, D. J., Pisano, G. & Shuen, A., 1997, pp. 509-533). Levcenko et al. (2020) believe that dynamic capabilities can penetrate into the organizational integration process and department operation, and use the reconfiguration of internal and external resources and comprehensive capabilities to change the over-dependence on organizational inertia (Levcenko, S., Stange, H. L., Choubrac et al., 2020). Eisenhardt et al. (2000) pointed out that dynamic capability can be defined as the process of perceives, absorbs and integrates resources so as to be able to cope with changes in the external environment (Eisenhardt, M. K., Nathan, R. F. et al., 2010, pp. 1263-1273). Wang and Ahmed (2007) pointed out that an enterprise's dynamic capability can be measured from three dimensions: innovation, absorption and adaptation. Among them, innovative capability refers to the ability to connect an enterprise's inherent innovation with its product market advantage. Absorptive capability refers to the ability of an enterprise to acquire external information knowledge and transform it into internal knowledge to serve the enterprise value creation. adaptive capability emphasizes the ability of an enterprise to keep its internal resources consistent with changes in the external environment by virtue of the flexibility of resource allocation (Wang, C. L. & Ahmed, P. K., 2004, pp. 303-313). Deng Xincai et al. (2022) believe that dynamic capability is mainly to improve the effectiveness of organizational operation by creating a good learning atmosphere and learning activities within the team. Dynamic capabilities can help organizations discover potential information from the environment, understand and absorb knowledge, and build new knowledge systems with existing knowledge. The accumulated knowledge forms the resource base of the enterprise, rapidly improving its ability to integrate and interact as well as its ability to respond to changes in the market environment (Deng, X. F., Chen, Z. N., Lu, P. et al., 2022, pp. 21-30).

3. Research Design

This study takes all A-share listed companies in Shanghai and Shenzhen from 2011 to 2022 as research samples. With reference to the general practice of previous literature studies and combined with the characteristics of this study, the following treatments were made for the research samples: (1) Companies that were PT, ST and *ST during the sample period were excluded; (2) Excluding financial listed companies such as financial industry and insurance industry, and selecting manufacturing listed companies; (3) Eliminate companies with serious missing key data; After the above collation and screening, a total of 9786 observed values were obtained. Most of the data used in this study came from Wind database and CSMAR database, and CSMAR digital transformation index was selected for digital transformation data.

3.1 Variable Selection

3.1.1 Explained Variables

Enterprise ESG performance. Compared with other ESG scores in the market, for example, compared with Wind ESG and Bloomberg ESG, the ESG data produced by China Securities covers almost all A-share listed enterprises, and its data covers A wide range of enterprises, has a long data time span, and has a high updating frequency, which has a high degree of integrity and representativeness. China Securities ESG evaluation system fully considers Chinese characteristics and characteristics of Chinese listed companies, and is more suitable for China's reality. It consists of 3 first-level indicators, 16

second-level indicators, 44 third-level indicators and more than 300 underlying data indicators. Specific indicators are shown in the following table. Therefore, with reference to the practice of Xie Hongjun and Lv Xue (Xie, H. J. & Lv, X., 2022, pp. 83-99), this paper selects the ESG rating of Huazheng, assigns the 9 grades C, CC, CCC, B, BB, BBB, A, AA and AAA as 1 to 9 respectively, and takes the average quarterly score as the final ESG score of the enterprise in the year, so as to measure the ESG performance of the enterprise. The higher the score, the better the ESG performance.

3.1.2 Explanatory Variable

Digital Transformation Index. Referring to the research practice of Zhen Hongredline (2023) in Economic Research (Zhen, R. L., Royal, S. & Fang, R. S., 2023, pp. 62-79), this paper adopts the enterprise digital transformation index in the digital transformation research database of China's listed companies in the CSMAR database to measure the level of enterprise digital transformation. The higher the digitalization index, the higher the level of digital transformation. The database is based on the relevant contents of the listed company's annual report, fund raising announcement, qualification certification and other announcements to build the digital level of enterprises, mainly including the listed company level of strategic leadership, technology driving, organizational empowerment, enterprise digital achievements and applications and macro level of environmental support six indicators, to construct the enterprise digital transformation index evaluation system. Compared with existing literatures only focus on the content of digital transformation in management Analysis and Discussion (MD&A), which has a wide coverage and detailed content, and can more effectively and comprehensively measure the digitalization level of enterprises. This paper selects the enterprise digital transformation index in the database and takes logarithm as the proxy variable of enterprise digital transformation.

3.1.3 Intermediate Variable

Dynamic capability. By referring to existing literature, it can be found that mainstream studies mainly measure dynamic capability through questionnaires, but the cross-sectional data obtained through questionnaires cannot reflect the change and evolution of enterprise dynamic capability. The dynamic capacity is divided into three levels: absorptive capacity, innovative capacity and adaptive capacity. This paper adopts the current popular practice to measure the absorptive capacity of enterprises by the ratio of R&D expenditure to the total revenue of sample companies. The higher the R&D expenditure intensity, the stronger the absorptive capacity of enterprises. Similarly, the measurement of innovation ability and adaptability also refers to the practice of the above scholars. Innovation ability is evaluated comprehensively by using two indicators: the annual R&D investment intensity of the sample enterprises and the proportion of R&D personnel in the total number of employees. The two indicators are standardized respectively, and then the comprehensive value of innovation ability of the enterprises is obtained by summing. The formula for calculating innovation capability is as follows:

$$In = \frac{(X_{RD} - min_{RD})}{(max_{RD} - min_{RD})} + \frac{(X_{RDper} - min_{RDper})}{(max_{RDper} - min_{RDper})} \tag{3.1}$$

The larger the value, the stronger the innovation ability of the enterprise. Adaptability reflects whether an enterprise can reallocate resources to respond flexibly when the external environment changes. Therefore, this paper uses the coefficient of variation of R&D expenditure, capital expenditure and advertising expenditure, which are three important expenditures of enterprises, to measure the flexibility of enterprise resource allocation and thus reflect the adaptability of the company: $Ad =$

$-\frac{\sigma}{mean}$, σ is the standard deviation of R&D expenditure intensity, capital expenditure intensity and advertising expenditure intensity, where capital expenditure intensity is equal to the ratio of capital expenditure to total operating revenue, and advertising expenditure intensity is equal to the ratio of advertising expenditure to total operating revenue of the company, $mean$ is the average of the three expenditures. The reason why the coefficient of variation is set as a negative value is that the direction of the change of the coefficient of variation should be consistent with the direction of the change of the adaptability of the enterprise, that is, the greater the coefficient of variation, the stronger the adaptability of the enterprise. The dynamic capability of the enterprise is obtained by summing and averaging the values of the above three kinds of capabilities：$Dc = \frac{Ad+In+Adap}{3}$.

All the variables and what they represent are displayed in Table 1.

Table 1. Control Variable

Variable type	Variable name	symbol
Explained variable	Enterprise ESG performance	***ESG***
Explanatory variable	Digital transformation index	***dts***
	Dynamic capability	***Dc***
Intermediate variable	Absorptive capacity	***ab***
	Innovation ability	***In***
	adaptability	***Adap***
	Asset-liability ratio	***Lev***
	Equity multiplier	***EM1***
	Long-term debt to capital ratio	***DLCR***
Control variable	Cash flow ratio	***Cashflow***
	Proportion of intangible assets	***Intangible***
	Proportion of tangible assets	***Tangible***
	Revenue growth rate	***Growth***

	Capital intensity	*CAP*
	The degree of capital intensity	*CMIR*
	WW index	*WW*
	KZ index	*KZ*

3.2 Model Construction

3.2.1 Benchmark Model Setting

In order to study the relationship between the digital transformation of the core explanatory variable and the ESG performance of the enterprise with the explained variable, the following baseline regression model is set up in this paper:

$$ESG_{it} = \alpha_0 + \alpha_1 dts_{it} + \alpha_k Control_{it} + \sum year + \sum industry + \varepsilon_{it} \qquad (3.2)$$

In equation (3.2), the explained variable is the enterprise ESG performance, represented by symbol ESG; the core explanatory variable is the enterprise's digital transformation degree, represented by symbol dts; the Control variable is the 11 variables mentioned above that include enterprise characteristics and corporate governance, $\sum Year$ is the time fixed effect. $\sum industry$ is the fixed effect of the industry, ε_{it} indicating the random disturbance term, and the i subscript represents the enterprise, t indicating the year. α_1 is the focus of regression results to measure the impact of enterprise digital transformation dts on enterprise ESG performance. If the α_1 is not 0 significantly, it means that enterprise digital transformation has a significant impact on enterprise ESG performance.

3.2.2 Mediation Effect Model Setting

In order to test how digital transformation affects enterprise ESG performance and whether there is an impact path, this paper conducts empirical analysis based on the theory of dynamic capability and takes dynamic capability, absorptive capability, innovation capability and adaptive capability as the intermediary variables. With reference to the study of Wen Zhonglin et al. (2014), stepwise regression method was adopted to test the intermediary effect, and the model was set as follows:

$$Dc_{it} = \beta_0 + \beta_1 dts_{it} + \beta_k Control_{it} + \sum year + \sum industry + \varphi_{it} \qquad (3.3)$$

$$ESG_{it} = \gamma_0 + \gamma_1 dts_{it} + \gamma_2 Dc_{it} + \gamma_k Control_{it} + \sum year + \sum industry + \mu_{it} \qquad (3.4)$$

Wherein, the intermediary variables (Dc) are dynamic capacity, absorption capacity (Ab), innovation capacity (In) and adaptation capacity ($Adap$), φ_{it}、μ_{it} respectively, are random disturbance terms in equation (3.3) and equation (3.4), and other variables are consistent with equation (3.2). The stepby-step regression test first verifies whether there is a significant correlation between enterprise digital transformation and innovation performance through equation (3.2). If the α_1 is not 0 significantly, it indicates that digital transformation has a significant impact on enterprise innovation performance. Secondly, regression tests are conducted on equations (3.3) and (3.4). Equation (3.3) is used to test the influence of digital transformation on the dynamic capability of intermediary variables, and equation (3.4) is used to test the mediating effect of digital transformation on enterprise innovation performance. If the coefficients of regression coefficients $\beta_1, \gamma_1, \gamma_2$ and are all significant, it indicates that dynamic capability has a partial mediating effect between digital transformation and enterprise innovation performance. If only β_1 and γ_2 significantly, dynamic capability has a complete

mediating effect between digital transformation and innovation performance. The tests are completed in sequence.

4. An Empirical Analysis

4.1 An Empirical Analysis of Benchmark Regression

Table 2 shows the test results of benchmark regression. The explanatory variables in benchmark regression model (1) only include control variables, and fixed time and industry effects, which are mainly used to investigate the relationship between each control variable and ESG performance of enterprises, indicating that the selection of control variables is reasonable. In order to explain the impact of digital transformation on enterprise innovation performance, baseline regression (2) adds the core explanatory variable of digital transformation on the basis of baseline regression (1). The regression results show that the coefficient of digital transformation is 0.007, which passes the significance level test of 1% and is significantly positive, indicating that digital transformation has a positive impact on the improvement of enterprise ESG performance.

Table 2. Regression Results

	Model(1)	Model(2)	Model(3)
	ESG	ESG	ESG
dts		0.012^{***}	0.007^{***}
		(0.00)	(0.00)
Lev	-0.908^{***}		-0.910^{***}
	(0.11)		(0.11)
EM1	-0.043^{***}		-0.043^{***}
	(0.01)		(0.01)
DLCR	0.740^{***}		0.750^{***}
	(0.13)		(0.13)
Cashflow	-1.138^{***}		-1.088^{***}
	(0.23)		(0.23)
Intangible	2.154^{***}		2.199^{***}
	(0.31)		(0.31)
Tangible	1.887^{***}		1.945^{***}

	(0.15)		(0.15)
Growth	-0.196***		-0.189***
	(0.01)		(0.01)
CAP	-0.055***		-0.054***
	(0.01)		(0.01)
CMIR	-0.049**		-0.046**
	(0.02)		(0.02)
WW	-5.319***		-5.111***
	(0.21)		(0.22)
KZ	-0.060***		-0.060***
	(0.01)		(0.01)
_cons	-2.439***	3.727***	-2.496***
	(0.26)	(0.09)	(0.26)
Industry	controlled	controlled	controlled
Year	controlled	controlled	controlled
N	9786	9786	9786
r2	0.169	0.062	0.172

Note. t statistics in parentheses * p < 0.10, ** p < 0.05, *** p < 0.01.

4.2 Regression of Mediating Effects of Dynamic Ability

Table 3 below lists the regression results of dynamic capability as an intermediate variable. According to the step-up regression method, the first step examines the total effect between the digital transformation of the core explanatory variable and the ESG performance of the explained variable, which has already been tested in the benchmark regression.

The second step of the stepwise regression method examines the influence mechanism between the dynamic ability of the intermediary variable and the digital transformation of the explanatory variable. Model (3) lists the impact of digital transformation on dynamic capability. The dts coefficient of digital transformation is 0.006, which passes the 1% significance level test, indicating that digital transformation has a positive impact on dynamic capability. This conclusion is also supported by the results of the following models (5), (7) and (9).

Model (4) lists the impact of digital transformation on absorbability. The coefficient of digital transformation dts is 0.001, which passes the significance level test of 1%, indicating that digital transformation has a positive impact on the absorbability of dynamic capacity. Model (6) shows the regression result of the influence of digital transformation on innovation capability. The coefficient of digital transformation is 0.002, which is significantly positive at 1% level, indicating that digital transformation has a positive effect on innovation capability in dynamic capability. Model (8) shows the regression result of digital transformation on adaptability. The coefficient of digital transformation is 0.003, which is also significant at the significance level of 1%, indicating that digital transformation has a positive effect on the adaptability of dynamic capability. It can be found that digital transformation has a more obvious effect on the improvement of innovation capability and adaptability of dynamic capability. Much stronger than absorption capacity.

The third step of stepwise regression method identifies and tests the intermediary effect mechanism. On the basis of the aforementioned regression, dynamic capability and its three dimensions are included in the regression equation respectively to test whether digital transformation can have a positive impact on enterprise innovation performance through dynamic capability, mainly focusing on the regression coefficient of dynamic capability. The regression coefficients of dynamic capability, absorptive capability, innovative capability and adaptive capability in the table are all about 0.007, and are all significant at 1% confidence level, indicating that absorptive capability, innovative capability and adaptive capability play an intermediary role in the relationship between digital transformation and enterprise innovation performance. Meanwhile, compared with model (1), The regression coefficients of digital transformation in models (3), (5), (7) and (9) adding dynamic capability indicators still passed the significance level test of 1%, but the coefficients decreased, indicating that absorptive capacity, innovation capacity and adaptive capacity play a mediating role between digital transformation and enterprise innovation performance, and play a partial mediating role.

Table 3. Intermediate Effect Regression Results

	Model(1)	Model(1)	Model(1)	Model(1)	Model(1)	Model(1)	Model(1)	Model(1)	Model(1)
	ESG	Dc	ESG	Ab	ESG	In	ESG	Adap	ESG
dts	0.007^{***}	0.002^{***}	0.006^{***}	0.001^{***}	0.007^{***}	0.002^{***}	0.007^{***}	0.003^{***}	0.007^{***}
	(0.00)	0.00	(0.00)	0.00	(0.00)	0.00	(0.00)	(0.00)	(0.00)
Dc			0.211^{***}						
			(0.06)						
Ab					0.515^{*}				
					(0.28)				

In								0.076***	
								(0.03)	
Adap									0.094**
									(0.04)
Lev	-0.910***	(0.03)	-0.903***	-0.049***	-0.884***	-0.091*	-0.902***	0.052*	-0.915***
	(0.11)	(0.02)	(0.11)	(0.01)	(0.11)	(0.05)	(0.11)	(0.03)	(0.11)
EM1	-0.043***	-0.004***	-0.042***	-0.001*	-0.042***	-0.011*	-0.042***	0.00	-0.043***
	(0.01)	(0.00)	(0.01)	0.00	(0.01)	(0.01)	(0.01)	(0.00)	(0.01)
DLCR	0.750***	-0.187***	0.790***	0.00	0.751***	-0.206***	0.765***	-0.355***	0.785***
	(0.13)	(0.02)	(0.13)	(0.01)	(0.13)	(0.05)	(0.13)	(0.03)	(0.13)
Cashflow	-1.088***	(0.04)	-1.079***	0.032**	-1.104***	0.02	-1.089***	-0.172***	-1.072***
	(0.23)	(0.04)	(0.23)	(0.01)	(0.23)	(0.09)	(0.23)	(0.06)	(0.23)
Intangible	2.199***	0.102*	2.177***	0.082***	2.158***	0.644***	2.149***	-0.421***	2.240***
	(0.31)	(0.06)	(0.31)	(0.02)	(0.31)	(0.13)	(0.31)	(0.10)	(0.31)
Tangible	1.945***	0.051*	1.934***	0.023***	1.933***	0.418***	1.913***	-0.288***	1.973***
	(0.15)	(0.03)	(0.15)	(0.01)	(0.15)	(0.06)	(0.15)	(0.04)	(0.15)
Growth	-0.189***	-0.007***	-0.187***	0.002**	-0.190***	-0.030***	-0.187***	0.01	-0.189***
	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)	(0.01)	(0.01)	(0.00)	(0.01)
CAP	-0.054***	(0.00)	-0.053***	0.013***	-0.060***	0.013**	-0.055***	-0.029***	-0.051***
	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)

CMIR	-0.046**	-0.015***	-0.043**	-0.004**	-0.044**	-0.021**	-0.044**	-0.019**	-0.044**
	(0.02)	(0.01)	(0.02)	(0.00)	(0.02)	(0.01)	(0.02)	(0.01)	(0.02)
WW	-5.111***	-0.121***	-5.084***	0.036**	-5.129***	-0.568***	-5.066***	0.169**	-5.127***
	(0.22)	(0.04)	(0.22)	(0.01)	(0.22)	(0.08)	(0.22)	(0.06)	(0.22)
KZ	-0.060***	0.004**	-0.061***	0.002**	-0.061**	0.01	-0.061***	0.00	-0.061***
	(0.01)	(0.00)	(0.01)	0.00	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)
_cons	-2.496***	-0.318***	-2.427***	0.00	-2.495***	-0.612***	-2.447***	-0.344***	-2.464***
	(0.26)	(0.05)	(0.26)	(0.01)	(0.26)	(0.10)	(0.26)	(0.07)	(0.26)
Industry	controlled	controlled	controlled	controlled	controlled	controlled	controlled	controlled	controlled
Year	controlled	controlled	controlled	controlled	controlled	controlled	controlled	controlled	controlled
N	9786.00	9786.00	9786.00	9786.00	9786.00	9786.00	9786.00	9786.00	9786.00
r2	0.17	0.43	0.17	0.36	0.17	0.52	0.17	0.18	0.17

Note. t statistics in parentheses * p < 0.10, ** p < 0.05, *** p < 0.01.

5. Management Enlightenment

ESG is becoming a "new language" for enterprises to communicate with each other, a "pass" to enter the global market, a "new label" to reflect national strength, and an accelerator to promote the high-quality development of Chinese manufacturing, promote China's green transformation, and achieve the goal of "double carbon". The new generation of digital technology has gradually penetrated into the enterprise, in the current tide of digital transformation, in the background of increasingly strict environmental standards at home and abroad, seize the digital opportunity has become an urgent requirement for enterprises to seek a new round of development. Therefore, in order to achieve sustainable development of enterprises and high-quality economic development, based on the empirical research conclusions, the following implications are proposed:

Based on the perspective of enterprises, first, enterprises should firmly grasp the opportunity of digital transformation, carry out digital construction, promote the integration of digital technology and the company's business, and strengthen enterprise innovation. Digital transformation is a driving engine to promote high-quality economic development, and it is also an excellent opportunity for some

enterprises to achieve corner overtaking and occupy an advantageous competitive position. The development of the digital economy is not only based on the progress of underlying digital technologies such as artificial intelligence, big data, blockchain, and cloud computing, but also the breakthrough of mobile Internet and information and communication technology has brought the development of digital technology applications to a higher level, and China's 5G technology development is in a leading position in the world. All these provide good opportunities and first-mover advantages for enterprises to carry out digital transformation and digital platform construction. Enterprises should firmly grasp the opportunities of The Times, further promote digital transformation, enhance their competitive advantages through digital innovation, and promote the transformation of digital transformation results, so as to improve their innovation performance. Second, enterprises should pay attention to the cultivation of dynamic capabilities in the process of digital transformation. Digital transformation breaks the way that enterprises used to connect with the external environment, and the construction of digital platforms and the application of digital tools also strengthen the connection between enterprises and stakeholders. These provide convenient channels for enterprises to absorb external resources and technologies, but enterprises need the support of dynamic capabilities when absorbing relevant resources and making innovation and transformation of resources. Enterprise dynamic capability includes three dimensions: absorption capability, innovation capability and adaptation capability. In terms of absorption capacity, enterprises should increase R&D investment, adopt certain rules and regulations and supporting measures to ensure that enterprises have stable R&D support, so that enterprises can obtain stable resource support for research and development expenditure in related aspects of digital transformation. In terms of innovation ability, in addition to stable financial support to ensure innovation investment, enterprises should also strengthen the training and support of scientific research and technical personnel. Scientific research and technical personnel are important productive forces of enterprises and important resources for enterprises to obtain long-term competitive advantages in market competition. The attention and training of innovative personnel can provide a steady source of power for the growth of enterprises' innovation ability. In terms of adaptability, enterprises should transform and utilize resources and information obtained through digital transformation in a timely manner, improve resource utilization efficiency, avoid redundancy and idle waste of resources, and maximize resource utilization, thus reducing costs and improving enterprise performance.

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