



THE IMPACT OF ESG PERFORMANCE ON THE HIGH QUALITY DEVELOPMENT OF PRIVATE ENTERPRISES

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Abstract

The realization of Chinese path to modernization is inseparable from the reasonable growth in quantity and effective improvement in quality of private enterprises in high-quality economic development. Based on the "sustainable" development strategy, this study explores the impact of ESG performance on the high-quality development of private enterprises, using Chinese listed private companies from 2009 to 2020 as research samples. The research results indicate that ESG performance contributes to the high-quality development of private enterprises and enhances their total factor productivity. There is a "U-shaped" relationship between the two, and a higher ESG performance is a prerequisite for the high-quality development of private enterprises.

Keywords: Resource orchestration, Environmental social and governance, ESG, Private enterprises, China

INTRODUCTION

Total factor productivity refers to the production efficiency of an enterprise over a period of time during its production and operation process. The essence of high-quality economic development is actually the improvement of total factor productivity. As of the end of 2022, the number of private enterprises has reached over 47 million, accounting for over 90% of China's enterprises. How to improve the total factor productivity of private enterprises is a common focus of management and academia.

The growth theory of neoclassical economics believes that the growth trend of total factor productivity is the sustainability of economic growth models. A large amount of literature has formed a consensus that the transformation of China's economic growth model under the new normal largely depends on the high-quality development of individual enterprises^[1]. With the transformation of China's economy towards a sustainable development model, private enterprises must not only play a micro driving role, but also adapt to the stage of economic development. It is urgent to enhance the sustainable development ability of private enterprises and achieve high-quality development.

ESG was first proposed by the United Nations Global Compact in the Environmental Planning and Financial Action Agency. The three letters are the acronyms for Environment and Social and Governance, representing environmental, social, and corporate governance. It is a new sustainable concept that balances the development of the environment, social responsibility, and corporate governance among enterprises. The research on ESG in China started relatively late, and the literature related to high-quality development of enterprises is slightly limited. However, there is already a rich research foundation for the impact of sustainable development strategies on high-quality economic development. Ultimately, the underlying logic of the two is consistent. From a macro perspective, high-quality development refers to the use of innovation to drive green development and achieve the goal of fair and inclusive economic outcomes for all people.

The government has promoted sustainable development strategies through measures such as environmental regulations and green market mechanisms, guided resources to flow to efficient enterprises, eliminated low capacity enterprises, and resolved the contradiction between promising governments and effective markets. However, there is relatively little research on the relationship between ESG performance and total factor productivity of micro enterprises themselves.

Financing constraints are constraints that cannot be ignored by private enterprises^[2]. In addition to agency issues, they are also constrained by investment volume and talent. "Stuck neck" and "fleeting moment" are the main problems that need to be solved urgently in the productivity dilemma of private enterprises at present^[1]. Studying the high-quality of private enterprises has more practical significance. Existing relevant literature has conducted numerous studies on the financing, innovation, governance, and ESG performance of private enterprises^[3], resulting in research results that have both practical and theoretical value, forming a solid theoretical foundation for this article. For private enterprises, integrating sustainable development strategies into their strategic goals is particularly important, as it directly manifests as extending the lifespan of private enterprises, optimizing their resource allocation structure,

and focusing on core competitiveness. The innovation strength, resource environment, and development potential of private enterprises in their lifecycle are all different^[4], and the mechanism of ESG performance on high-quality development changes accordingly. According to the resource-based theory, resource orchestration takes into account both enterprise resource acquisition and resource management behavior^[5], and dynamically explains the reason why enterprises with similar resources have different lifespans^[6].

The marginal contribution of this article lies in the following three aspects: firstly, in the horizontal dimension, the life cycle is included in the analysis framework system, and in this system, the dynamic relationship between the two is revealed from the time dimension by combining the cross-sectional heterogeneity of private enterprises; Secondly, existing research is limited to horizontal differentiation such as financing difficulties and talent attraction difficulties for private enterprises, and has failed to reveal its underlying logic from the vertical logic of enterprise resource absorption capacity. This article draws inspiration from the resource concerto theory and makes further theoretical supplements from the vertical perspective of resources; Thirdly, research has found that ESG performance combines governance effects, resource effects, and cost effects. As the level of ESG disclosure changes, the three effects will show a state of ebb and flow, and there is a "U-shaped" relationship between high-quality development of private enterprises. This conclusion reconciles the contradiction between cross-sectional heterogeneity of private enterprises and productivity dilemmas, expands the behavioral interaction mechanism of sustainable concepts on private enterprise production, and provides the latest evidence for the overall ESG performance of enterprises to empower high-quality economic development.

LITERATURE AND HYPOTHESES

In recent years, a large number of studies have measured total factor productivity at the micro level as the core factor for high-quality development of enterprises^[7]. Abernathy proposed the classic "productivity dilemma" theory, and the success of enterprises not only depends on the improvement of economic efficiency, but also on the sustainable win-win situation of disruptive innovation^[8]. Under the established technological paradigm, enterprises gradually form their own core competencies, and as their core competencies gradually grow to the critical point of ultimate innovation, their capabilities also gradually stagnate.

According to the theory of resource dependence, whether enterprises can obtain key resources and maintain them through management efficiency and quality (G) is the core issue of high-quality development of enterprises^[9]. Hsieh&Klenow (2009) defined the efficiency of enterprise resource allocation as whether a company invests limited resources in projects with

high returns^[10]. Georey et al. (2022) proposed based on the structural dividend hypothesis that enterprise productivity can be promoted by improving management skills and optimizing factor allocation. The ESG concept is gradually changing the business objectives of enterprises: in the past, enterprises that used to maximize net present value as the sole investment standard, managers would reduce investment in certain high-risk but high value investment projects, forming a defense mechanism for managers, deviating from sustainable development^[11]. ESG reshapes its values (S), calling on enterprises to actively fulfill their ESG responsibilities, improving transparency in corporate governance through monitoring and feedback on the design of internal governance mechanisms^[9], correcting management and defense mechanisms that deliberately avoid risks, improving the efficiency of internal resource allocation, and ultimately generating a "governance effect"^[12].

On the other hand, innovation can be seen as an important strategic resource for enterprises^[13]. Increasing R&D investment is a leading factor in determining a company's green strategy and environmental development (E), including various issues such as organizational structure innovation, technological innovation, and environmental strategy innovation^[14]. Enterprises acquire knowledge resources through diversified networking with consumers and investors, forming a logical chain of "enterprise innovation R&D investment green resource flow total factor productivity improvement"^[15]. In addition, the sustainable orientation of enterprises is not only the upgrading of innovation capabilities in production and operation, but also a new combination of production factors and enterprise value, which generates a "resource effect"^[16].

The above literature suggests that ESG performance has a positive impact on total factor productivity of enterprises, but there are also views that sustainability, as a long-term strategy, is not only beneficial to enterprises. ESG, as a strategic resource, has a delay effect and will inevitably squeeze out enterprise costs, exclude other means of production^[17], reduce enterprise profits^[9], and thus lead to a decrease in productivity, resulting in a "cost effect"^[18].

The above basic assumptions are all based on a healthy external market environment. However, private enterprises in China have inherent financing constraints and talent constraints. The report shows that most of them are in the growth stage 1, which has become one of the few "curses" for private enterprises. According to the "2022 China Top 500 Private Enterprises Research and Analysis Report" published by the National Federation of Industry and Commerce, ESG investment is in a negative growth stage at this time in 2022. After private enterprises enter the mature stage, those with high ESG scores rely on the ESG "halo effect", which alleviates credit discrimination and makes them more likely to obtain high returns. ESG performance combines governance effects, resource effects, and cost effects. As the level of

ESG disclosure changes, these three effects will fluctuate and affect the high-quality development of private enterprises.

H: The relationship between ESG performance and total factor productivity shows a "U-shaped" pattern of first decreasing and then increasing. When the ESG level of a company is low, the "crowding out effect" is the dominant effect. As the ESG level increases, the "crowding out effect" is replaced by the "incentive effect".

RESEARCH METHODOLOGY

Variable Selection

TFP of Enterprises

The classic method for estimating TFP is to use two semi-parametric methods - OLS (Ordinary Least Squares) and LP (Local Projection). However, both these methods suffer from the problem of collinearity in estimating labor production in the first stage, when using the traditional OLS estimation of the CD production function. In this article, we adopt the ACF (Akerberg et al., 2015) method of estimating TFP of enterprises, which includes labor as an intermediate variable in the correlated function and thus avoids the drawbacks of non-uniformity in production functions. Our estimation method combines dynamic (GMM) and static (OLS) approaches, which relax the stringent conditions for adjusting factors and fully consider the estimations of individual decisions made by micro-enterprises.

Corporate ESG Performance (ESG)

In this study, the Huazheng ESG rating system¹ was used to evaluate corporate ESG performance. The system ranks ESG performance on a scale of nine levels (AAA to CCC) and assigns scores, with higher scores indicating better ESG performance.

Control Variables

The study used various enterprise characteristics as control variables, including firm size (Lnscale), leverage ratio (LEV), cash flow ratio (ATO), institutional investor ownership (INST), management expense ratio (Mfee), Tobin's Q value (TobinQ), and number of directors (Board). Table 1 lists the variable names, characters, and definitions:

¹ Shanghai Huazheng Index Information Service Co., Ltd. is a professional index and index service company. Huazheng ESG rating has the characteristics of being close to the Chinese market, wide coverage, and high timeliness. Its application scenarios include various fields such as ESG index construction, portfolio risk management, ESG evaluation of asset management products, and quantitative strategy research and development.

Table 1 Variable Definition Table

Variable Name	Variable Name	Variable Code	Definition
Dependent Variable	Enterprise Total	<i>TFP_{acf}</i>	Enterprise total factor productivity estimated using ACF method
	Factor Productivity	<i>TFP_{op}</i>	Enterprise total factor productivity estimated using OP method
Independent Variable	ESG Performance	<i>Score</i>	Score assigned according to the Huazheng ESG rating system
	Enterprise Age	<i>Age</i>	Logarithm of the time since the enterprise was established
Control Variables	Leverage Ratio	<i>LEV</i>	Debt divided by owner's equity
	Cash Flow Ratio	<i>ATO</i>	Operating cash flow divided by total assets
	Institutional Investor Ownership	<i>INST</i>	Proportion of institutional investor's contributions to the registered capital
	Management Expense Ratio	<i>Mfee</i>	Operating expenses divided by main business income
	Tobin's Q	<i>TobinQ</i>	Total market value of the enterprise divided by total assets
	Number of Directors on Board	<i>Board</i>	Total number of members on the enterprise's board
	Industry Effects	<i>ind</i>	Industry virtual variable
Time Effects	<i>year</i>	Time virtual variable	

Model Construction

Firstly, to explore the impact of enterprise ESG performance on total factor productivity of enterprises, based on the theoretical analysis above, the author constructs a panel regression model with two-way fixed effects at the enterprise level:

$$TFP_{i,t} = \alpha_0 + \alpha_1 Score_{i,t} + \alpha_2 Score_{i,t}^2 + \gamma_1 CV_{i,t} + \sum Industry + \sum year + \varepsilon_{i,t}$$

ANALYSIS AND FINDINGS

Benchmark Regression Results

Table 3 reports the regression results of the impact of corporate ESG performance on total factor productivity, controlling for individual and time fixed effects in columns (1)-(4), and performing robust standard error clustering at the company level. Total factor productivity is measured using the ACF method. The results in column (1) show that the ESG coefficient is

positive and significant, indicating that corporate ESG performance can improve productivity. Columns (2)-(4) divide the entire sample into three groups of A-rated, B-rated and C-rated companies, with all three groups having positive ESG coefficients, providing further support for hypothesis.

Table 2. Relationship between ESG Performance and Total Factor Productivity of Enterprises

	ESG		A-rated Companies		B-rated Companies		C-rated Companies	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Score	0.150*** (8.02)	-0.660*** (-6.63)	0.194*** (8.35)	-0.788*** (-6.32)	0.105* (5.15)	-0.612*** (-5.23)	0.140** (2.33)	-0.12 (-0.37)
Score²		0.065*** (7.62)		0.078*** (7.48)		0.057*** (5.82)		0.021 (0.80)
Age	-0.566* (-101.0)	-0.569* (-101.2)	-0.559* (-86.49)	-0.562* (-87.60)	-0.551* (-90.71)	-0.554* (-90.91)	-0.631*** (-47.52)	-0.63*** (-47.52)
ROA	0.985* (2.19)	0.994** (2.24)	0.306 (0.53)	0.370** (0.64)	1.086** (4.31)	1.070** (2.25)	0.694 (1.2)	0.688 (1.2)
LEV	2.167*** (6.19)	2.134*** (6.15)	1.631*** (3.48)	1.596*** (3.44)	1.623*** (4.31)	1.606*** (4.31)	0.938** (2.35)	0.924** (2.21)
ATO	0.541*** (5.59)	0.545*** (6.02)	0.571*** (6.13)	0.574*** (6.28)	0.393*** (4.76)	0.396*** (4.84)	0.513*** (3.05)	0.515** (3.01)
INST	1.08*** (10.61)	1.066*** (10.52)	1.324*** (12.13)	1.294*** (12.06)	1.984*** (8.9)	1.073*** (8.89)	1.740 (5.68)	1.738 (5.65)
Mfee	-0.014** (-2.21)	-0.014* (-1.99)	-0.011*** (-2.67)	-0.011*** (-2.62)	-3.59*** (-7.68)	-3.570* (-7.57)	-0.461*** (-3.44)	-0.46*** (-3.41)
TobinQ	-0.023 (-1.53)	-0.023 (-1.52)	-0.154* (-1.80)	-0.153* (-1.79)	-0.183*** (-6.79)	-0.023 (-1.52)	-0.092 (-3.58)	-0.092 (-3.56)
Board	0.588*** (4.91)	0.578*** (4.86)	0.478*** (3.94)	0.469*** (3.89)	0.639*** (4.88)	0.631*** (4.85)	0.785** (2.29)	0.782** (2.27)
cons	9.014*** (31.21)	11.507*** (27.56)	9.056*** (28.11)	12.109*** (24.33)	10.081*** (32.44)	12.286*** (25.38)	9.048*** (11.16)	9.838*** (7.52)
year	yes	yes	yes	yes	yes	yes	yes	yes
industry	yes	yes	yes	yes	yes	yes	yes	yes
N	18450	18450	7979	7979	10330	10330	618	618
Adj R²	0.7969	0.798	0.887	0.889	0.7058	0.7068	0.724	0.725

CONCLUSION AND ENLIGHTENMENT

The relationship between ESG performance and the high-quality development of private enterprises has developed into a "U" shape. With excellent ESG performance, the total factor productivity of private enterprises shows a process of first "crowding out effect" and then transitioning to "incentive effect". Secondly, after clarifying that ESG performance contributes to total factor productivity, the lifecycle characteristics of ESG performance affecting the productivity of private enterprises were further clarified based on the perspective of horizontal time coordination. The growth period is a large base group of private enterprises, and the threshold for "incentive effect" in the mature period is higher than that in the growth period. The two effects are no longer significant in the recession period. How to pass the growth period is the core issue for China's private sector to break through the productivity curse.

The driving force behind the high-quality development of private enterprises comes from the tripartite forces of local governments, investors, and the enterprises themselves, with different roles played by the three main entities. Based on this, this article provides the following insights for the overall empowerment of ESG performance for the high-quality development of private enterprises:

Managers should formulate relevant policies based on the dual perspectives of the development stage and external environment of the enterprise. In the growth period, enterprises should focus their strategy on breakthrough innovation and concentrate resources to achieve innovation catch-up. At this stage, credit discrimination is not as obvious. Private enterprises should mainly replace internal financing with external financing, appropriately increase the ratio of commercial credit financing, and try diversified financing methods. In the mature period, private enterprises should maintain the sustainability of green innovation, achieve the transformation of green knowledge into technology, and create sustainable value for the enterprise. Managers should establish a sound internal management and supervision system, improve company transparency, and reduce the risk of resource mismatch in enterprises. During the recession, private enterprises adopt a more cautious investment attitude, focusing on enterprise zombieization, repairing existing innovation, and breaking through the difficulties faced by enterprises at this time.

With the increasing pursuit of sustainability in various countries, China's economy is undergoing a transition from quantitative to qualitative change. ESG is a new concept that emphasizes the coordinated development of environmental protection, social responsibility, and corporate governance. It integrates environmental, social and corporate governance factors into an organic whole, and reflects the comprehensive development of macroeconomic high quality and micro-enterprise sustainability. The conclusion that there is a positive correlation between

ESG and high-quality development has been reached through the above research. Next, further research should focus on whether ESG has a smooth sailing effect on the high-quality development of enterprises? And, what is the process in between?

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