

Research on the motivation, mode and performance of green transformation of textile companies

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Abstract. The characteristics of high pollution and high energy consumption of the traditional textile industry make it urgent for a comprehensive optimization and upgrading after the goal of "carbon peak and carbon neutral" in China. Based on the research background of "double carbon" target, this paper studies the transformation of the textile enterprises, choose has the country's largest textile industry cluster of Zhejiang Shaoxing KeQiao for research object, through the questionnaire survey, field research, case study method found that: industry transformation effect overall positive momentum, but there are still competitiveness, power, the target. Furthermore, this paper selects typical enterprises and divides different forms of green transformation into substantive green transformation, arbitrage green transformation and stress green transformation. Moreover, it summarizes the main characteristics of transformation mode to create precise "5G", innovate low energy consumption technology and promote green finance. Finally, the performance results of the three transformation modes are analyzed, which expands the research direction of the transformation mode for the green goal of energy conservation and emission reduction in the textile industry, points out a new road and provides new enlightenment for the exploration of the green transformation mode of enterprises. Green manufacturing is the decisive factor and the only way to realize the social sustainable development strategy, and is the inevitable trend of the development of manufacturing industry. **Keywords:** energy saving and emission reduction; textile industry; green transformation; performance analysis

1 Introduction

In recent years, tremendous changes have taken place in human society, and the emissions of carbon dioxide and other gases have brought great threats to the earth's environment. After the strategic target in 2020, China has issued a series of policy guidance, and local and governments have also given positive responses. The study of how enterprises realize green transformation under the background of low carbon is conducive to the construction of ecological civilization and the realization of two-carbon goals.

2 Literature review

Textile industry is the traditional pillar industry of China. However, due to the wide industrial chain, the printing, dyeing, packaging, transportation and recycling processes will produce a large amount of carbon emissions and other harmful substances, as well as serious environmental pollution[1,2]. The pandemic, wars, economic growth, and rising population are all contributing factors to the current resource crisis, which is having a significant influence on people's basic needs [4]. One of the most fundamental needs of a person is clothing and textiles, without which we cannot even

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function for a single day [5]. Global demand for textiles and clothes is escalating, but raw materials are getting more difficult to come by Rodil-Marzábal et al. [6]. So it is particularly important for the industry of green transformation, textile and clothing under the background of transformation of development model, emphasize China's textile industry development low carbon economy model is not only a trend, and is inevitable, new technology, new technology, green production is the inevitable trend of future textile industry development, and China's textile industry is developing in the direction of "green". Considering that carbon emissions will have a significant impact on the manufacturing activities of textile enterprises, the product innovation in the textile industry also needs to be studied from the perspective of environmental sustainability [3]. The Chinese government has made it clear that the development of green technology is the main focus and sustained driver of combat against carbon dioxide (CO₂) emissions and climate change[7].

3 Research Method

By mastering the basic ideas and research steps of case study, and preparing the case, case data collection, case analysis and case writing according to the research steps, so as to ensure the standardization of the research process of this case.

4 Case analysis: the effect analysis of the different modes of green transformation of Shaoxing textile enterprises

4.1 Effectiveness analysis of the substantive green transformation model

In terms of the difference between the three ways of green transformation, the substantive green transformation lies not only in obtaining the government's policy subsidies and completing the green transformation indicators, but also lies in the continuous green and sustainable development of the enterprises themselves.

4.1.1 Financial performance research

Financial performance mainly analyzes the changes of Yingfeng company's business performance before and after the green transformation. This paper analyzes its profitability and development ability, and selects the data of Huafang shares in the same period for comparison.

(1) The impact of green transformation on profitability

Seen from the open data of listed company, the basic earnings per share of Yingfeng Stock declined between 2016 and 2017, and gradually recovered in the following years. Financial performance main analysis meet feng company in before and after the change of green transformation business performance, this paper through the analysis of its profit ability, development ability, and select the data of the data, the main business scope is roughly the same, in many of the same industry enterprises, the key is its in the analysis period has not yet carried out the green transformation, Nowadays, due to global economic and demographic growth, resources are in greater demand [8].so have comparability to explore the influence of green transformation on enterprise financial performance.

(2) The impact of green transformation on development capacity

Among the major indicators that affect the development ability of the enterprise, Yingfeng Company changes greatly in the initial stage of green transformation, while the development ability is related to the stagnation of the early green transformation and the economic situation.

4.1.2 Environmental performance research

The research on the environmental performance of Yingfeng is mainly discussed from two aspects of input-output and supervision, and objectively evaluates the impact of the green transformation. In the process of green transformation, most of its R & D investment is used for the development of environmental protection projects and the research of environmental protection patent technology, so the R & D investment can represent the environmental performance of the enterprise to some extent and the most important R & D investment is the resulting output. In 2015, Yingfeng shares began to declare patents, and it began to deploy green transformation as early as 2013. The number of green patents has been increasing year by year.

4.2 Performance analysis of the arbitrage-type green transformation mode

For the arbitrage green transformation enterprises, the biggest difference between them and the substantive green transformation enterprises lies in the difference in scientific research investment, and they can also distinguish the arbitrage enterprises from the correlation between operational benefits and government subsidies and the change of scientific research investment.

4.2.1 Financial performance research

(1) The impact of green transformation on profitability

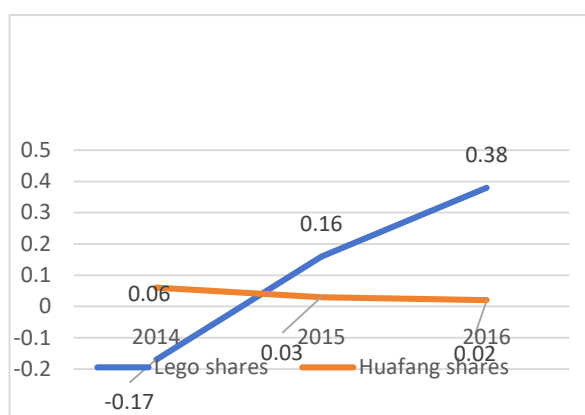


Fig. 1. Basic profitability of the company

It can be seen from the figure1 that Lego shares in 2014-2016 basic earnings per share rising trend, in contrast, its basic earnings per share is declining, the burden of green transformation, this paper believes that because the Lego shares enterprise is small, and government subsidies accounted for 35.11% of its net profit, so the small influence on the green transformation.

(2) The impact of green transformation on development capacity

Table 1. Analysis table of enterprise development ability

Time	SALESG	AGR	NPGR	GRONA
2015	-45.6%	31.1%	191.3%	28.5%
2016	67.5%	17.9%	17.9%	81.6%

It can be seen from table 1 and table 2, Lego shares in addition to its main business income fell in 2015, other indicators are growth, compared with China spinning share net profit fell for two years, which with the short term green transformation affect the enterprise.

Table 2. Analysis table of enterprise development ability

Time	SALESG	AGR	NPGR	GRONA
2015	2.02%	14.67%	-45.03%	1.44%
2016	4.93%	12.10%	-17.96%	1.11%

4.2.2 Environmental performance research

Compared with Yingfeng shares, which has a substantial green transformation, Lego shares only discuss the number of patents due to the lack of data.

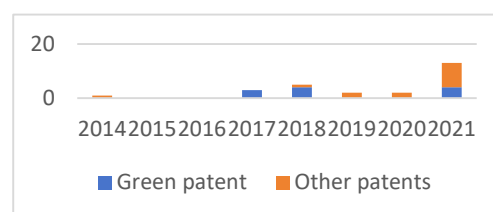


Fig. 2. Number of patents of Lego shares

It can be seen from the figure2, from the perspective of the total number of patents, compared with Yingfeng Shares, Lego shares has a small annual patent output, but the annual green patents account for a large proportion. Therefore, compared with substantive green transformation enterprises, arbitrage green transformation enterprises have certain research and development willingness, but the output efficiency is low.

5 Conclusions and implications

5.1 Research conclusions

Enterprises can carry out green transformation in different ways to achieve the green transformation and upgrading goals according to the actual situation and their own development strategies. In the investigation and research of green transformation of textile enterprises in Keqiao District, it is found that there are mainly three types: substantial green transformation, arbitrage green transformation and stress green transformation. How to adopt a more effective mode transformation in the face of different environmental changes is the key to reduce energy consumption and improve the efficiency of transformation.

5.2 Management implications

Enterprises need to further improve the green and low-carbon technology innovation system oriented to carbon neutrality, and take green and low-carbon development as an important pillar of building a world textile science and technology power. First, the enterprise should define its position and respond to the call; second, it should establish the concept of actively promoting scientific and technological innovation and apply what is learned; finally, in the context of closer connection in the world, the enterprise needs to strengthen international cooperation.

Enterprises can achieve the goal of energy conservation and emission reduction through three aspects: first, to effectively control the greenhouse gas emissions of key industries, promote green manufacturing and promote the industrial green transformation; second, to strengthen the control of greenhouse gas emissions in the production process; third, to strengthen the recovery and utilization of renewable resources and improve the efficiency of resource utilization.

References

1. Kerui Du, Pengzhen Li, Zheming Yan. Do green technology innovations contribute to carbon dioxide emission reduction? Empirical evidence from patent data, *Technological Forecasting and Social Change*, 146, 297-303 (2019)
2. Emrah Ozturk , Hasan Koseoglu , Mustafa Karaboyaci , Nevzat O.Yigit , Ulku Yetis , Mehmet Kitis .Sustainable textile production: cleaner production assessment/eco-efficiency analysis study in a textile mill, 138(2), 248-263 (2016)
3. Z. Allam, S.E. Bibri, S.A. Sharpe, The rising impacts of the COVID-19 pandemic and the Russia–Ukraine war: Energy transition, climate justice, global inequality, and supply chain disruption, *Resources* 11 (11) 99-110(2022)
4. A. Rese, D. Baier, T.M. Rausch, Success factors in sustainable textile product innovation: An empirical investigation, *J. Clean. Prod.* 331 129829(2022)
5. Ó. Rodil-Marzábal, A.L. Gómez Pérez, H. Campos-Romero, The global textile and apparel value chain: From Mexico–US–China linkages to a global approach, *Economies* 10 (10) 258-272(2022)
6. Annarosa Gugliuzza a, Enrico Drioli .A review on membrane engineering for innovation in wearable fabrics and protective textiles, *Journal of Membrane Science*, 446, 350-375 (2013)
7. Tang Meirun & Leonardus WW Mihardjo & Muhammad Haseeb & Syed Abdul Rehman Khan & Kittisak Jermittiparsert .The dynamics effect of green technology innovation on economic growth and CO2 emission in Singapore: new evidence from bootstrap ARDL approach, 28(4):4184-4194(2021)
8. M.F.B. Alam, M.T. Islam, M.M. Hossan, M.M. Rahman, Assessing the impact of speed change on energy consumption and productivity: Investigating ring frame process parameters, *Text. Leather Rev.* 5, 509–524(2023)