Environmental information disclosure of textile and garment enterprises

Pengfei Shao, Yiyi Li and Lei Yao

School of Business, Beijing Institute of Fashion Technology, Beijing, 100029

1Email: sxyl@bift.edu.cn

Abstract. As the government, society, public and other stakeholders pay more attention to environmental protection, enterprise environmental information disclosure has gradually become a hot issue in theoretical research. Textile and garment industry is an important part of China's national economy, but in its development process, there are very serious environmental pollution problems and governance difficulties. In this paper, the textile and garment industry listed enterprises as the research object, through the investigation of the environmental information disclosure of annual reports, independent reports and other four years from 2015 to 2018, set up the rating scale, analyze the current situation of environmental information disclosure, explore the existing problems, and put forward corresponding measures to improve, so as to make up for the ecological environment weaknesses of China's textile and garment industry as soon as possible.

1. Introduction

In recent years, China has formed the environment of green securities, green credit and green insurance as the main policies of the environment and economy. It has played a good role in guiding the listed companies to undertake the responsibility of environmental protection and continuously improving the environment level. The policy is based on the environmental information disclosure system and promotes the active environmental management of listed companies. In 2010, the Ministry of environmental protection issued the "guide to environmental information disclosure of listed companies", requiring the enterprises of heavy polluting industries such as thermal power, steel, cement, electrolytic aluminum and so on to issue annual environmental reports. A few textile-listed enterprises took the lead in putting out the relevant information on annual environmental protection and pollution control of enterprises, and set an example for other textile and garment enterprises, but until nearly five years ago, the disclosure of environmental information is gradually appearing in all the listed companies' annual reports.

According to Fekrat, inclan and petroni, environmental information disclosure is not voluntary behavior of enterprises [1]. Buhr believes that the establishment of the environmental reporting system is to a large extent a tool to improve the transparency of the company's environmental performance [2]. Jianming Wang found that external regulatory system pressure promotes the disclosure of enterprise environmental information [3]. Hua Xiao and Guoqing Zhang think that enterprise environmental information disclosure is a kind of self-interest behavior [4]. Zhonghe Tian explores that enterprise listing abroad can significantly improve the level of environmental information disclosure [5]. Minyi Lv studies the existing problems and Countermeasures of environmental information disclosure of Chinese Listed Companies [6]. At the same time, scholars analyzed the current situation of
environmental information disclosure of Listed Companies in different provinces, such as Yang Luo, Mingwang Zheng and so on, studied the listed companies in Jiangsu Province and Shanxi Province [7,8]. Scholars also analyzed and explored different industries, such as Sheng Yao and Jiajia Shang, who studied listed companies in coal industry and power industry [9,10].

In this context, it is of great practical significance to investigate the current situation of environmental information disclosure in China's textile and garment industry. This civilization has confirmed that the research object is listed enterprises in the textile and garment industry in 2015-2018. Through statistical analysis and differential analysis, it explores the environmental information disclosure, finds out the existing problems and gives relevant suggestions. The inadequacy of this paper lies in that the domestic environmental information disclosure has not formed a perfect disclosure system, which leads to the differences in the disclosure content of listed companies and the errors in the research process, hoping that the state or industry can issue clear and binding policies to urge enterprises to disclose environmental information, so as to provide scientific and fair information for future research.

2. Analysis on the current situation of textile and garment listed enterprises

At present, there are nearly 100 enterprises listed in China's textile and garment industry. Among them, there are newly emerging enterprises that have just been listed in recent two years, and there are also mature enterprises over five years old. In order to study coherence and data contrast, this paper analyzes and excludes the enterprises whose annual report disclosure is less than 4 consecutive years, selects 90 listed enterprises, and selects the annual reports and independent reports of enterprises from 2015 to 2018 as the research objects. Secondly, this paper makes a classified statistical analysis of the textile and garment listed enterprises from three angles of regional differences, industry differences and city age, and tries to give some help and inspiration from the perspective of basic external environment characteristics and internal structure of enterprises.

2.1. Industry differences

According to the different fields of enterprises, this paper divides the total sample into four industries for analysis and comparison. As shown in Table 1, the number of garment manufacturing enterprises in this sample is the largest, which is closely related to the industrial structure of garment processing and manufacturing in China: in China, there are many textile enterprises, but they are generally small in scale, unable to achieve the listing level, so they are reflected in this sample. The number of textile printing and dyeing enterprises is less than that of garment manufacturing enterprises. Textile printing and dyeing industry and garment manufacturing industry account for more than 80% of the total sample number. The number of fur and footwear enterprises is slightly higher than that of other types of enterprises. Other types of enterprises are mainly due to the change of business strategy and enterprise transformation and other factors. The original main business of textile and garment business is back to the secondary business, so they are not divided into the above three industries.

| Industry                | Numbers | Representative enterprises                                      |
|------------------------|---------|---------------------------------------------------------------|
| Textile printing and dyeing industry | 34      | LUTHAI TEXTILE, FUJIAN FENGZHU, HUAFANG COMPANY, SHANGHAI DRAGON CORPORATION |
| Fur shoes industry     | 9       | RED DRAGONFLY, WANLIMA                                         |
| Garment manufacturing  | 43      | LANCY, PEACEBIRD, SEPTWOLVES, LANG SHA GROUP, SEMIR           |
| Others                 | 4       | ERDOS, YOUNGOR                                                 |

2.2. Regional differences

To some extent, the development of China's textile and garment industry is deeply influenced by the region. The geographical location and the policy tendency of local governments are very important for
the growth and development of enterprises. This paper is divided into six regions according to the geographical location. Because there is no textile listed enterprises in remote areas, it will not be analyzed in this paper. It can be seen from Table 2 that the most concentrated area of China's textile and garment listed enterprises is East China, where 55 enterprises are located. In East China, the number of enterprises in Zhejiang, Jiangsu and Fujian provinces is the largest. It can be seen that China's textile and garment listed enterprises generally tend to grow in the southeast coastal areas, which is attributed to the dense population of southeast coastal areas. On the other hand, it is closely related to the origin of the development of textile and clothing in the history of our country. In addition to East China, the distribution of listed enterprises in other regions is relatively uniform. Guangdong Province in South China is also one of the regions where the distribution of textile and garment listed enterprises is relatively dense.

Table 2. Regional distribution of textile and garment listed enterprises.

| Region                        | Numbers | Representative enterprises                  |
|-------------------------------|---------|--------------------------------------------|
| North China (Beijing, Tianjin, Hebei, Shanxi, Inner Mongolia) | 6       | JIHUA, TOREAD, LANCY, TIANSHOU, ERDOS, HERAS |
| Central China (Henan, Hubei, Hunan) | 4       | MAILYARD, MENDALE, HENAN XINYE, HUASHENG  |
| East China (Shanghai, Jiangsu, Zhejiang, Anhui, Fujian, Jiangxi, Shandong) | 55      | FUJIAN XUNXING, JIAHIN SILK, HODo, JOEONE  |
| Southwest (Chongqing, Sichuan, Guizhou, Yunnan, Tibet) | 4       | LANGSHA                                     |
| Northwest (ShanGanNing, Qinghai, Tibet) | 2       | LANZHOU SANMAO                              |
| South China (Guangdong, Guangxi, Hainan) | 19      | FOSHAN SATURDAY SHOES, TOP SCORE FASHION, BIEM.L. FDLKK |

2.3. Age differences on the market

In this paper, according to the different time of listing of different enterprises, the characteristics of textile and clothing listed enterprises are analyzed and sorted out according to the age of the market. From Table 3, we can see that the listed age of China's textile and garment enterprises generally tends to be mature. There are 38 enterprises with a cumulative market age of more than 10 years, including 9 enterprises with a market age of more than 20 years. These enterprises are important pillars of China's textile and garment industry. At the same time, there are 15 textile and garment enterprises listed in the past three years. This trend shows that the development of textile and garment enterprises in China is relatively stable, without many listings or lagging behind. The performance of these young enterprises in environmental protection, pollution and other aspects is also a sign of the current development trend of enterprises, with strong differences and research value.

Table 3. Listed textile and garment enterprises by market age.

| Market age | Numbers | Representative enterprises |
|------------|---------|----------------------------|
| 0-3 years  | 15      | DAZZLE, RIBO FASHION, KANGLONGDA |
| 3-10 years | 37      | KUANGDA NETWORK TECHNOLOGY, SANTOS, SEMIR |
| More than 10 years | 38 | ERDOS, TIANSHOU, HUAFANG |

In summary, through the analysis of the differentiation and classification statistics of 90 textile and apparel listed companies in the overall sample, we can see that the overall environmental information disclosure situation of China's textile and clothing listed companies still has shortcomings and shortcomings. It is worth analyzing and giving suggestions through scientific statistical methods.
3. Analysis on the level of environmental information disclosure

3.1. Sample selection
At present, there are nearly 100 listed enterprises in China's textile and garment industry, including emerging enterprises just listed in recent two years, and mature enterprises with market age of more than five years. In order to study the consistency and data comparability, this paper selects 90 listed companies as the research object, excluding the enterprises whose annual reports are less than 4 consecutive years. Most enterprises choose to disclose the statistics of their investment in environmental pollution control and protection in the past year through annual reports or corporate social responsibility reports. In order to better compare the environmental protection level of different enterprises in the textile and garment listed enterprises, this paper selects and sorts out the data of 2015-2018 annual reports and corporate social responsibility reports of all 90 listed enterprises by using statistical analysis method, so as to show the current situation of environmental protection level of the industry.

3.2. A quantitative and qualitative scoring framework
Considering that different enterprises belong to the same textile and garment industry, but their sub industries have their own characteristics, the pollution and three wastes emission of printing and dyeing, garment processing and manufacturing enterprises are significantly higher than those of the companies mainly engaged in garment design and retail, the author adopts the most commonly used content analysis method in formulating the standards for evaluating the level of environmental information disclosure of enterprises, and studies with the textile and garment industry In recent years, experienced experts communicate with each other and refer to the academic literature in the field of environmental information disclosure. A scoring standard framework for environmental information disclosure including a total of 15 scoring items has been developed. See Table 4 for specific scoring items.

| Environmental Information Disclosure Project | Scoring standard |
|---------------------------------------------|------------------|
| Environmental policy projects               | No effective information is found to disclose information: 0 points. |
| A 1.1 Environmental or ecological conservation planning, systems, policies or programmes | There is qualitative analysis of the language description: 1 points. |
| B 1.2 Does an enterprise set up an environmental management organization or participate in other environmental management organizations? | Quantitative data or chart information description: 2 points. |
| C 1.3 National environmental protection standards, ISO14000 environmental management certification system or other environmental management systems. | Combination of qualitative and quantitative analysis: 3 points |
| D 2.1 The work done by enterprises in the treatment of waste gas, waste water and solid waste. | No effective information is found to disclose information: 0 points. |
| E 2.2 Environmental accidents, environmental litigation or disputes, administrative penalties for environmental protection | There is qualitative analysis of the language description: 1 points. |
| F 2.3 Is the enterprise effective in solving the problem of noise pollution? | Quantitative data or chart information description: 2 points. |
| G 2.4 Management of dangerous chemicals and hazardous wastes and effective treatment of toxic and harmful chemicals | The text data is accurate and accurate, which can reflect the true situation of the enterprise: 3 points. |
| H 2.5 The work done by enterprises in the treatment of waste gas, waste water and solid waste. | |
| Implementation of environmental protection | |
| I 3.1 Publicity, training, education and public welfare of enterprises in environmental protection | No effective information is found to disclose information: 0 points. |
| J 3.2 the enterprise make efforts in waste recycling | There is qualitative analysis of the language description: 1 points. |
| K 3.3 Work done by enterprises in environmental management innovation | Quantitative data or chart information description: 2 points. |
| L 3.4 Whether green office enterprises have actions to save resources | The text data is accurate and accurate, which can reflect the true situation of the enterprise: 3 points. |
| M 3.5 Enterprise's actions in environmental protection facilities, technology and process | |
| N 3.6 Management of ecological environment in or around the plant area of the enterprise | |
| O 3.7 Enterprises' attention to biodiversity | |

Table 4. Rules for environmental information disclosure standards.
3.3. Result analysis

According to the above standards, the environmental information in the annual report and social responsibility report of the enterprise is comprehensively screened and scored. Finally, the final score of the enterprise is obtained according to the weight of different projects. After a comprehensive analysis and comparison of the environmental information disclosure level of 90 enterprises, the author collates and obtains a list of enterprises, as shown in Table 5 (enterprises with scores lower than 10 are not shown).

Table 5. Environmental information disclosure ranking of textile and clothing listed enterprises.

| Ranking | Enterprise              | Score | Ranking | Enterprise             | Score |
|---------|-------------------------|-------|---------|-------------------------|-------|
| 1       | LANZHOU SANMAO          | 81    | 24      | HANGZHOU NBOND          | 21    |
| 2       | LUTHAI                  | 70    | 27      | SEPTWOLVES              | 20    |
| 3       | JIANGSU LUGANG          | 63    | 28      | JIALINJIE               | 18    |
| 4       | ZHEJIANG WEIXING        | 50    | 28      | WANLIMA                 | 18    |
| 5       | ANHUI HUAFU             | 48    | 30      | HLA                     | 18    |
| 6       | JIHUA GROUP             | 47    | 30      | JIANGSU LIANFA          | 17    |
| 7       | HUAFANG                 | 42    | 32      | HERAS                   | 16    |
| 8       | ERDOS                   | 41    | 33      | MENDALE                 | 15    |
| 9       | VEYONG BIO-CHEMICAL     | 40    | 33      | AOKANG                  | 15    |
| 10      | INDUSTRIAL TECHNOLOGY   | 40    | 33      | SINOER                  | 15    |
| 11      | BAILONG EAST            | 40    | 33      | LA CHAPELLE             | 15    |
| 12      | Hòdo                    | 39    | 33      | WANG NENG               | 15    |
| 13      | JIANGSU SUNSHINE        | 39    | 33      | LA CHAPELLE             | 15    |
| 14      | SUNVIM GROUP            | 38    | 39      | SAINT ANGELO            | 14    |
| 15      | XINYE TEXTILE           | 38    | 39      | MODERN AVENUE           | 14    |
| 16      | SHANDONG RUYI           | 38    | 39      | SICHUAN ZHENJING        | 14    |
| 17      | SANFAME GROUP           | 34    | 42      | SHANGHAI METERSBONWE    | 12    |
| 18      | JIAXIN SILK             | 30    | 42      | LUOLAI                  | 12    |
| 19      | SHENZHEN FUANNA         | 28    | 42      | SEMIR                   | 12    |
| 20      | BOSIDENG                | 28    | 42      | XINJIANGJOINWORLD       | 12    |
| 21      | TOP SCORE FASHION       | 24    | 46      | SHANGHAI HAIXIN         | 11    |
| 22      | ZHONGYIN CASHMERE       | 24    | 46      | MAILYARD                | 11    |
| 23      | XINLONG GROUP           | 23    | 46      | JINFA LABI              | 11    |
| 24      | ZHEJIANG BANGJIE        | 21    | 46      | TIANSHOU                | 11    |
| 25      | ANNIL                   | 21    | 50      | HUASHENG                | 10    |

On the score alone, LANZHOU SANMAO has the highest score in the research and production of wool textiles. The company has a high degree of importance attached to the environmental protection and sustainable development of its enterprises in the annual report, and the information disclosure is more comprehensive and profound. Detailed disclosure and introduction of the data, such as the type, location and total amount of pollutants emitted by the LANZHOU SANMAO Industrial Limited by Share Ltd in the past year, are much lower than those approved by the environmental protection department. This shows that the enterprise has implemented the work and practical actions in controlling the pollution discharge; secondly, the company has implemented the work and the actual action. In the annual report, the company has introduced in detail the sewage treatment technology and deep recovery technology of its own designed and developed, which not only responds to the requirements of the state and government's resource saving and environment-friendly development, but also improves the efficiency of resource utilization of enterprises. In addition to the relevant laws and regulations and industry standards formulated by the environmental protection department, a contingency plan for unexpected environmental incidents has also been worked out to provide sufficient pre preparation and pre-plan for unexpected environmental events. In summary, the environmental information disclosure of the enterprise is comprehensive and comprehensive. It is a model worthy of reference and imitation for other textile and garment listed enterprises.

Combined with the above analysis of differentiation, the scores of enterprises are not related to the regional distribution; there is a certain correlation with the industry differences. The scores of enterprises in fur footwear industry are all in the upper and middle reaches, the scores of garment manufacturing enterprises are generally low, and the differentiation of textile printing and dyeing enterprises is serious; the scores of enterprises are related to the market age, and the scores of
enterprises with large market age are generally high. The score of enterprise environmental information disclosure is summarized in Figure 1. There are quite several enterprises with low score of environmental information disclosure. These enterprises basically do not disclose any data and text information about environmental protection and pollution control of their own enterprises and subsidiaries in the annual report and Social Responsibility Report. On the one hand, based on industry restrictions, design and retail based enterprises do not have problems and need to be supervised in terms of pollution discharge; on the other hand, these enterprises do have problems such as weak awareness of environmental information disclosure and unclear concept of environmental protection, which need to be strengthened and improved in future production and operation. No matter what the reasons are, modern enterprises should establish environmental protection awareness, formulate environmental management policies, actively disclose their own environmental management information, and consciously accept the supervision of the public.

![Figure 1. Distribution map of corporate environmental information disclosure.](image)

4. Conclusions and suggestions
This paper analyzes the sample data of annual report and independent report of listed textile and garment enterprises, and concludes the ability judgment and Characteristics Summary of these enterprises in environmental information disclosure. Overall, most of the enterprises have the awareness and practical actions of environmental information disclosure. The work and efforts of a small number of enterprises in their own environmental protection are obviously sufficient to other enterprises.

Based on the above analysis and summary, combined with the characteristics of the textile and clothing industry and the current situation of environmental information disclosure of enterprises, the author gives the following suggestions: enterprises should enhance the awareness of consciously disclosing environmental information, accept social supervision and self-urging, and constantly improve the efficiency of resource utilization and the level of environmental protection. At the same time, the content of environmental disclosure should be quantified, including: the punishment of the enterprise on laws and regulations, the amount of investment in environmental aspects, the outflow direction, etc.; increase the recycling of waste; the relevant departments of textile and clothing industry should establish a sound environmental information disclosure evaluation system as soon as possible to help enterprises do a good job in environmental information quantitative evaluation and improvement. The government should constantly improve the relevant rules and regulations of environmental information disclosure of listed enterprises, combine rewards and punishments, enforce the disclosure of environmental information.

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