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Research on ESG practices of Chinese enterprises—co-creating a sustainable future

Yanxuan Deng[1*], Wenqing Zhu[2], Jinjia Chen[3]

[1]Xiamen No.1 High School of Fujian Province (Haicang Branch), Xiamen, China
[2]Qingdao Academy, Qingdao, China
[3]Chongqing Bashu Science City High School, Chongqing, China

*Corresponding Author. Email: 249252712@qq.com

Abstract. This research was completed collaboratively by the three authors, aiming to systematically assess the development status and industry differentiation characteristics of Chinese enterprises in the field of Environmental, Social and Governance (ESG) [1], and explore the evolutionary path of ESG practices from compliance disclosure to value creation. The study adopts a systematic data collection method, based on ESG reports, sustainability reports, annual reports published on corporate official websites and public data from authoritative rating agencies [2], conducts a cross-year tracking of a number of Chinese Fortune Global 500 enterprises, and converts textual information into structured datasets to support multi-dimensional comparative analysis. The results show that industries present significant differentiation in financial performance, ESG rating coverage, adoption of international disclosure frameworks and achievement rate of core indicators; leading enterprises in some industries have initially institutionalized ESG governance and aligned with international standards, but the overall situation still has common shortcomings such as "high actions with low commitments" and insufficient gender diversity; the number of ESG reports continues to grow, and the disclosure paradigm is integrating towards systematic frameworks, yet there remains a gap between standardization and substantive actions. The research conclusion points out that ESG in China is undergoing a critical transformation from social responsibility response to strategic value creation. Enterprises urgently need to internalize material issue management into core competitiveness, convert compliance costs into unique customer value and sustainable business models, so as to seize the competitive advantage in the next stage.

Keywords: ESG information disclosure, industry differentiation, carbon peaking commitments and actions, gender diversity

1. Introduction

In 2004, the United Nations Global Compact first proposed the concept of ESG, marking the transformation of corporate responsibility from "shareholder primacy" to multi-stakeholder and long-term value. Over the past two decades, driven by the United Nations Principles for Responsible Investment, the International Sustainability Standards Board and regulatory authorities of various countries, ESG has evolved from a marginal concept into a core framework for measuring enterprises' sustainable development capabilities.

However, the true meaning of ESG is not a superficial comprehensive statement, but whether an enterprise can accurately identify the material issues most relevant to its industry characteristics—from carbon emission control to employee diversity and equality, from board independence to supply chain ethics—and internalize these issues into a strategic engine that drives innovation and reduces risks.

In China, the development of ESG has gone through the germination of corporate social responsibility and the exploration of green finance. In 2022, the State-owned Assets Supervision and Administration Commission (SASAC) of the State Council established the Bureau of Social Responsibility and required full coverage of ESG reports for listed central state-owned enterprises, marking that ESG disclosure is moving from voluntary to standardized, from concept to action. Against this background, based on the systematic tracking of more than 150 Chinese Fortune Global 500 enterprises from 2020 to 2025, this report reveals the current situation, differentiation and evolutionary trends of ESG practices of Chinese enterprises through multi-dimensional analysis of financial data, ESG ratings, report disclosure frameworks and core indicators, and pursues a more decisive future proposition: when ESG becomes a compulsory course, how can enterprises convert this compliance cost into a "good business" that drives growth and builds competitive barriers?

2. Research methodology

We comprehensively collected ESG information of more than 150 enterprises among the 2025 Chinese Fortune Global 500 through a systematic and traceable data collection method. The data mainly comes from ESG reports, sustainability reports and annual reports published on corporate official websites, combined with public evaluation results from authoritative rating agencies such as S&P, MSCI, Refinitiv and Huazheng. For key dimensions of each enterprise such as environmental commitments, governance structure and social responsibility, we extracted and coded the disclosure status year by year from 2020 to 2025, converted textual information into structured data, and finally formed an analyzable dataset covering financial performance, rating results, disclosure frameworks and core indicators. The entire collection process focused on traceable sources, comparable indicators and verifiable data, laying a solid foundation for the subsequent cross-industry ESG comparative research.

3. Overall analysis

3.1. Basic corporate operation information

There are 33 Fortune Global 500 enterprises in the sample, with average revenue, profit and profit margin (see Table 1).

Table 1. Average revenue, profit and profit margin (total / by industry)

Category	Average Revenue (Million USD)	Average Profit (Million USD)	Average Profit Margin
Internet Services and Retail	38,216.5	5,343.9	13.25%
Chemicals	20,814.1	318	3.15%
Semiconductors and Electronic Components	12,501.2	2,170.1	7.16%
Engineering and Construction	65,254.1	966.8	1.51%
Network and Communications Equipment	24,622.9	1,547.2	5.61%
Computers and Office Equipment	28,953.4	520.8	0.11%

Table 1. Continued

Trade	33,821.4	97.6	0.56%
Vehicles and Parts	27,545.2	1,982.5	3.43%
Transportation and Logistics	15,467.7	585.4	6.47%

3.2. Adoption of 4 ESG disclosure frameworks

See Table 2 for Adoption of 4 ESG Disclosure Frameworks.

Table 2. Adoption of 4 ESG disclosure frameworks

Disclosure Framework	Number of Adopters
GRI	51
IFRS	21
SASB	18
SDGs	40

3.3. Adoption of 4 ESG rating agencies

See Table 3 for Adoption of 4 ESG Rating Agencies.

Table 3. Adoption of 4 ESG rating agencies

	Number of Rated Enterprises	Number of Unrated Enterprises
S&P ESG	87	67
Huazheng ESG	82	72
Refinitiv ESG	74	80
MSCI ESG	76	78

3.4. Publication of various reports

From 2020 to 2024, the publication of corporate reports shows an obvious trend of structural transformation (see Table 4): the number of Environmental, Social and Governance (ESG) reports increased steadily from 31 to 68, while the number of Corporate Social Responsibility (CSR) reports gradually decreased from 42 to 20, reflecting that the non-financial information disclosure of enterprises is integrating from traditional CSR reports into a systematic ESG framework. During the same period, the number of sustainability reports and annual reports also maintained growth. However, the number of all types of reports dropped significantly in 2025, especially only 1 ESG report was published. This abnormal change needs further analysis in combination with the information disclosure cycle or policy environment.

Table 4. Publication of various reports

Category	2020	2021	2022	2023	2024	2025
Sustainability Report	11	12	17	20	29	0
ESG Report	31	44	55	64	68	1
CSR Report	42	38	37	26	20	1
Annual Report	44	48	49	50	51	14
Total	128	142	158	160	168	16

3.5. Selected indicators of the research

We selected a total of 6 indicators across the three ESG dimensions, with 2 indicators for each dimension. The response of enterprises to each indicator is as follows:

Indicator 1 (Whether committed to achieving carbon peaking by 2030): Responded by 61 enterprises

Indicator 2 (Whether having a path to achieve carbon peaking): Responded by 102 enterprises

Indicator 3 (Whether disclosing the proportion of female employees): Responded by 45 enterprises

Indicator 4 (Whether carrying out public welfare activities related to rural revitalization): Responded by 105 enterprises

Indicator 5 (Whether disclosing the proportion of female directors): Responded by 51 enterprises

Indicator 6 (Whether establishing an ESG committee): Responded by 73 enterprises

4. Research on internet services and retail, semiconductors and electronic components, transportation and logistics industries (written by Jinjia Chen)

4.1. Sample selection and industry overview

This section selects a total of 50 enterprises shortlisted in the 2025 Chinese Fortune Global 500 from three industries: Internet Services and Retail (16), Semiconductors and Electronic Components (21), and Transportation and Logistics (13), among which 12 have successfully ranked among the Fortune Global 500. These three industries represent platform-based enterprises in the digital economy era, high-tech manufacturing and entity basic service fields respectively. Their ESG performance not only reflects industry characteristics, but also maps the sustainable development challenges and opportunities in the transformation of China's economic structure.

4.2. Financial performance of each industry

The 2025 financial data (see Table 5) shows that the Internet Services and Retail industry ranks first in both average revenue and average profit, reaching 62,714.3 million USD and 8,769.4 million USD respectively, reflecting its market scale advantage. Although the Semiconductors and Electronic Components industry has the smallest average revenue scale (23,335.6 million USD), it has the highest average profit margin of 17.36%, consistent with its technical barriers and global pricing power. The Transportation and Logistics industry has an average revenue of 25,945.8 million USD, but an average profit margin of only 3.78%, showing a typical "small profits but quick turnover" characteristic.

Table 5. 2025 Financial data of the three major industries

Industry Name	Average Revenue (Million USD)	Average Profit (Million USD)	Average Profit Margin (%)
Internet Services and Retail	62,714.3	8,769.4	13.98
Semiconductors and Electronic Components	23,335.6	4,050.9	17.36
Transportation and Logistics	25,945.8	982.0	3.78

4.3. ESG information disclosure and evaluation

4.3.1. Comparative analysis of environmental dimension (E)

In terms of carbon peaking commitments and path planning, all three industries present the characteristic of "path planning rate higher than commitment rate". The Transportation and Logistics industry has the highest commitment rate (92.3%), followed by the Semiconductor industry (90.5%), and the Internet industry is relatively low (81.2%). However, in terms of path planning, the Transportation and Logistics industry reaches 100%, the Semiconductor industry 90.5%, and the Internet industry 87.5%, reflecting that enterprises have started carbon reduction actions but are cautious about public commitments.

4.3.2. Comparative analysis of social dimension (S)

In terms of gender equality disclosure, the disclosure rate of the proportion of female employees in the three major industries is generally low. The Semiconductor industry has the highest disclosure rate of 52.4%; followed by the Internet industry with 37.5%; and the Transportation and Logistics industry has the lowest rate of 30.8%. Although the disclosure rate is not high, the average proportion of female employees in the disclosed enterprises is about 30%, which is basically consistent with the labor force structure of the industries.

4.3.3. Comparative analysis of governance dimension (G)

In terms of governance transparency, the Semiconductor industry has the highest disclosure rate of female directors (57.1%), the Internet industry 37.5%, and the Transportation and Logistics industry the lowest (30.7%), revealing that Internet enterprises are relatively conservative in governance transparency. In terms of the establishment of ESG committees, the Semiconductor industry reaches 95.2%, the Transportation and Logistics industry 84.6%, and the Internet industry 68.8%, indicating that the establishment of a special ESG committee has become an industry standard configuration.

4.4. ESG disclosure frameworks and report publication

4.4.1. Adoption of ESG disclosure frameworks

In the selection of ESG disclosure frameworks, industries show differentiated characteristics. The Internet industry has the most mature disclosure, with a SASB framework adoption rate of 50%, GRI 31%, SDGs 44%, and IFRS 25%. The Semiconductor industry mainly adopts GRI (24%), SDGs 19%, IFRS 10%, and SASB adoption rate is 0. The Transportation and Logistics industry has a serious lack of standardized disclosure: GRI and SDGs are only 8%, and SASB and IFRS are both 0%, facing great credibility challenges.

4.4.2. Publication trend of ESG reports

From the perspective of report publication trend, the ESG report publication rate of the three major industries showed an overall upward trend from 2020 to 2024. The Internet industry jumped from 44% to 56%, achieving a key breakthrough in 2022; the Semiconductor industry grew steadily from 33% to 43%; the Transportation and Logistics industry rose from 54% to 62%, with the highest publication rate all the time and a good disclosure foundation.

4.5. Summary of research on internet services and retail, semiconductors and electronic components, transportation and logistics industries

Data analysis finds that the Semiconductor industry takes a comprehensive lead in governance transparency and mechanism construction; the Transportation and Logistics industry is active in environmental commitments but low in governance transparency; although the Internet industry has excellent financial performance, it has not exerted its expected advantages in substantive dimensions such as the depth of environmental actions and governance transparency. Although the Internet Services and Retail industry has the largest number of Fortune Global 500 enterprises, its ESG performance is not naturally better than that of the Logistics and Semiconductor industries.

5. Research on engineering and construction, vehicles and parts industries (written by Wenqing Zhu)

5.1. Ranking of vehicles and parts industry in the 2025 Chinese fortune global 500 and fortune global 500

In the field of Vehicles and Parts, only a few enterprises have entered the Fortune Global 500, namely Xiaomi and BYD, both of which are new energy vehicle manufacturers. They involve more technical considerations and core technology development, have high requirements for professional standards, and face the development of a new field, responding to the current "new popular trend" of new energy vehicles. Many people choose more convenient, environmentally friendly and affordable new energy vehicles. The number of Vehicles and Parts enterprises in China's Top 500 ranks second, showing that the industry has a high development level in China, a large scale and industrial chain, and great influence in the country.

5.2. Ranking of engineering and construction industry in the 2025 Chinese fortune global 500 and fortune global 500

Most of China's Engineering and Construction enterprises have entered the Fortune Global 500 with relatively high rankings. China's Engineering and Construction industry is world-renowned for its large scale and good quality, with projects all over the world, including in many countries such as Africa, carrying out support work in response to the national international initiative. Most Engineering and Construction enterprises are rarely fully private, and most are supported by the state, so they develop rapidly and have a large scale.

5.3. Analysis of the number of China's top 500 enterprises and domestic industry environment, and reasons for proportion

Table 6. Number of engineering and construction, vehicles and parts enterprises in China's top 500 and fortune global 500

Industry	Number of China's Top 500 Enterprises	Number of Fortune Global 500 Enterprises Among Them
Vehicles and Parts	34	2
Engineering and Construction	18	11

Analysis of enterprises entering China's Top 500: Although supported by the state, it is not the most mainstream industry with little potential (Table 6).

5.4. Revenue and profit of engineering and construction industry

The revenue is low and the profit is medium. The reason for low revenue is that most industrial projects are national projects and some are public welfare projects. The reason for medium profit is that the development goal is not to make huge profits, but mainly to maintain the development of the enterprise.

5.5. Revenue and profit of vehicles and parts industry

In the field of Vehicles and Parts, the proportion of loss-making enterprises accounts for 18.91%, mainly due to the "small profits but quick turnover" marketing model. Affected by the downturn of the overall economic trend, the Vehicles and Parts industry is not optimistic.

5.6. Special disclosure reports on environmental aspects

The main analysis reasons are as follows: First, new energy vehicles are not only for groups seeking more affordable and convenient options, but also a considerable number of people buy new energy electric vehicles mainly to respond to environmental protection and love the environment. From the use of ESG frameworks by the Vehicles and Parts industry, the number of enterprises adopting IFRS and SASB is small and equal, both of which are related to finance and emphasize the importance of finance. From the use of ESG frameworks by the Engineering and Construction industry, the number of enterprises adopting IFRS and SASB is still small, reflecting that IFRS and SASB are not widely popularized in China, and most enterprises choose other frameworks.

As shown in Figure 1, it can be seen that the number of CSR reports is decreasing while the number of ESG reports is increasing, and the line charts of the two types of reports are in a staggered state, indicating that more companies respond to the trend of the times and turn from CSR reports to ESG reports with more long-termism and investment reliability, which is in line with the development trend of ESG in China. Many enterprises' reports were at a low point from 2020 to 2022. Although there was a slight growth trend, it was not significant, which came from the long-tail effect after the epidemic, and enterprises were still affected by the lag of the epidemic period and failed to recover from the long-term economic stagnation. The general situation of Vehicles and Parts is similar to that of Engineering and Construction. The Vehicles and Parts industry has developed steadily and recovered quickly after the epidemic, and is also developing in line with the trend of the times. The number of enterprises using ESG reports has increased while CSR reports have decreased, and the total number of unpublished reports has decreased since 2021 and developed steadily afterwards.

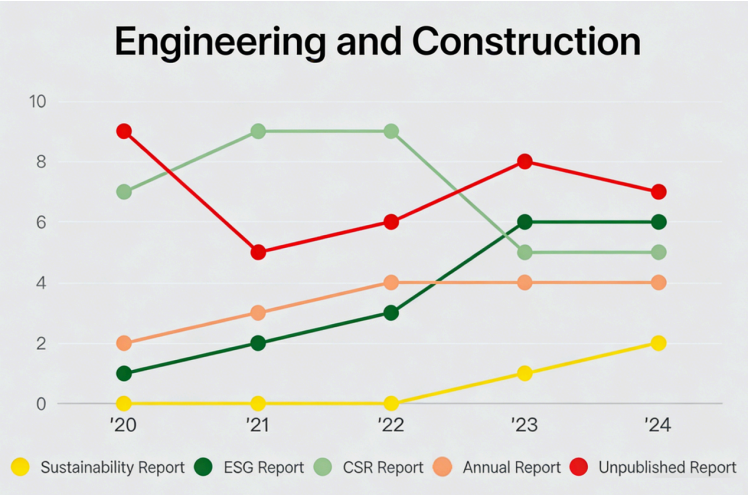

Figure 1. Changes in reports of the engineering and construction industry

5.7. Ratings

The number of enterprises choosing each ESG rating agency is average. Compared with rated enterprises, unrated enterprises account for the majority, reflecting that many enterprises do not approve or hold expectations for ESG because their net income is zero or even negative, do not recognize the importance of the ESG system, and under external pressure, think that appropriate ESG disclosure and compliance with national or commercial organization regulations are sufficient, and do not really attach importance to the integrated development of enterprises and ESG.

5.8. Dimensions

Most enterprises have paths to reduce carbon emissions and achieve carbon peaking, but have no commitments on carbon peaking, indicating that enterprises do not want to directly bear this responsibility and have no awareness of advancing with the goal of carbon peaking as the development intention. In the fields of Vehicles and Parts and Engineering and Construction, only four enterprises have disclosed the proportion of female employees, and the maximum proportion of female employees and female board members is 30.11%. The disclosure of gender equality has not been fully popularized and practiced in the fields of Vehicles and Parts and Engineering and Construction. In the fields of Engineering and Construction and Vehicles and Parts, 13.2% of enterprises have established ESG committees to directly manage the integrated development of enterprise ESG and enterprise development, as well as ESG goals and management. Most large-scale enterprises with higher rankings will directly set up ESG committees. During the statistics, it was found that enterprises with higher rankings have the highest participation in rural revitalization and greater influence, and are the key targets of national policy promotion. The essence of rural revitalization is to realize rural modernization and prosperity. The promotion of rural revitalization involves many aspects, such as policy encouragement and ESG practices [3].

6. Research on computers and office equipment, chemicals, trade, network and communications equipment industries

6.1. Financial performance of surveyed enterprises

Tracking 50 enterprises shortlisted in the 2025 Chinese Fortune Global 500 from 4 industries: Trade (17), Computers and Office Equipment (8), Chemicals (17), Network and Communications Equipment (8), among which 10 have successfully ranked among the Fortune Global 500.

The 2025 financial data (see Table 7) shows that the average revenue of the Computers and Office Equipment industry is significantly higher than that of other industries, reflecting its market scale advantage; the Chemicals industry ranks first in average profit margin with strong profitability; the Trade industry has high revenue and low profit, reflecting its "small profits but quick turnover" business model.

Table 7. 2025 Financial data of various industries

Industry Name	Average Revenue (Million USD)	Average Profit (Million USD)	Average Profit Margin (%)
Chemicals	16,950.6	300.9	3.49
Computers and Office Equipment	55,460.9	1,329	2.22
Network and Communications Equipment	30,498.8	330	2.13
Trade	22,445.6	307.3	0.87

6.2. ESG information disclosure and evaluation of enterprises

6.2.1. Coverage of rating agencies

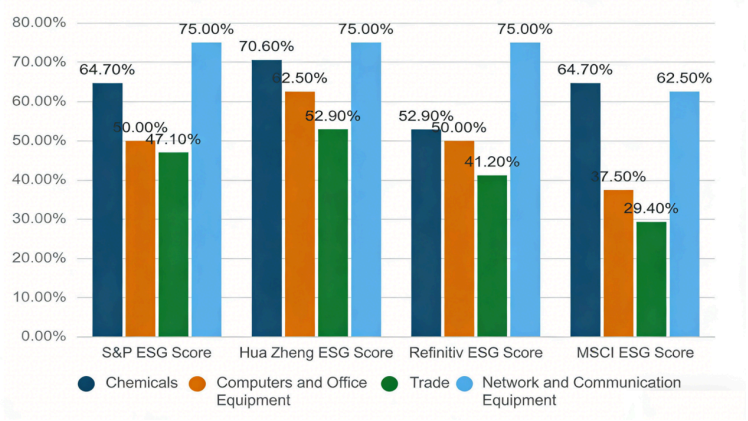

Figure 2. Adoption of 4 rating agencies in 4 industries

The coverage of the 4 selected well-known domestic and foreign ESG rating agencies in various industries (as shown in Figure 2) reflects the willingness of enterprises to participate in external evaluations to a certain extent. Among them, the Network and Communications Equipment industry and the Chemicals industry have relatively balanced coverage; the Computers and Office Equipment industry and the Trade industry have low coverage in MSCI ratings, indicating that their integration with the international ESG evaluation system needs to be strengthened.

6.2.2. Publicity of ESG information

In terms of ESG information transparency, the Trade industry and the Chemicals industry have high ESG-related report disclosure rates of 76.5% and 70.5% respectively, indicating their attention to ESG disclosure. The disclosure rate of the Computers and Office Equipment industry is low (25%), which is in sharp contrast to its huge revenue scale, revealing an obvious shortcoming in non-financial information disclosure of the industry. The disclosure rate of the Network and Communications Equipment industry is 62.5%.

6.2.3. Correlation between corporate ESG ratings and profit margins

Data research finds that there is a correlation between corporate profit margins and corporate ESG ratings. Among the 4 industries, enterprises with higher profit margins have relatively higher ratings from Huazheng, Refinitiv and MSCI. The potential reason is that high profit margins provide a basic guarantee for enterprises' ESG investment, improve the long-term sustainable development capacity of enterprises by improving operational efficiency and saving costs, thereby enhancing market competitiveness and obtaining more profits.

6.3. Standardization and implementation of ESG information disclosure

6.3.1. Standardization of ESG information disclosure

Through data analysis of the standards of ESG rating agencies adopted by the 4 industries, the Computers and Office Equipment industry has a high overall alignment level and relatively leading disclosure quality; there is internal differentiation in the Chemicals industry, and some enterprises still need to improve their awareness of disclosure; the Trade industry and the Network and Communications Equipment industry are generally weak in ESG information disclosure and urgently need to strengthen the connection with international standards [4].

6.3.2. Specific implementation of ESG information disclosure

6.3.2.1. Comparative analysis of environmental dimension (E)

(1) Gap between commitments and actions. Except for the Trade industry, the carbon peaking path planning rate of the other three industries is significantly higher than the commitment rate. Especially in the Chemicals industry, the path planning rate is as high as 88.23%, but the commitment rate is only 29.41%, indicating that enterprises in various industries lack confidence in achieving carbon peaking within the specified time, but have taken relevant measures in carbon emission reduction.

(2) Lack of commitments. Limited by the meager profit space, public commitments mean additional carbon costs and pressure of supply chain restructuring. The carbon peaking commitment rate of the Trade industry is 0%, but 70.59% of enterprises have taken actions in path planning.

6.3.2.2. Comparative analysis of social dimension (S)

(1) High popularity of public welfare activities. The implementation rate of public welfare activities related to "rural revitalization" in the 4 industries exceeds 75%, mainly because rural revitalization is a national top-level strategy. Active participation can obtain recognition and support from local governments, which is an efficient "political and social relationship investment".

(2) Insufficient gender equality disclosure. The disclosure rate of the proportion of female employees is generally low, indicating that enterprises in various industries pay less attention to the employment rate of female employees, and there is still room for improvement in gender equality.

6.3.2.3. Comparative analysis of governance dimension (G)

The overall proportion of female directors is low. The average proportion of female directors in all industries is lower than 17%, with the lowest being 7%, reflecting that board gender diversity is still a common shortcoming. Among them, the Chemicals industry takes the lead in governance performance. It ranks first in

both the disclosure rate of the proportion of female directors and the establishment rate of ESG committees, showing that its ESG governance has been initially institutionalized.

7. Conlusion

Therefore, we should not stop at asking "who is better", but must pursue a more decisive future proposition: when the ESG "special course" of various industries has become a consensus "compulsory course" [5], how can enterprises convert this compliance cost into a "good business" that drives growth and builds competitive barriers? In other words, the next frontier of competition is no longer "whether you have done it", but "whether you can create unique customer value and business model by doing what you should do most in ESG?" This evolution from "responsibility response" to "value creation" is the most exciting next chapter in the ESG narrative.

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