Journal of Innovation and Development
ISSN: 2958-4752 | Vol. 2, No. 1, 2023

The impact of ESG information disclosure on the capital market under the dual-carbon strategy

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Abstract: Judging from the current situation, China has great confidence in achieving the carbon peak and carbon neutrality. Looking at our capital market, focusing on the main part of listed companies, as for the question of how to play their own role, when reviewing the 14th Five-Year Plan, we find that green finance has played an irreplaceable role in helping to achieve green and low-carbon sustainable development into a development direction, and ESG information disclosure also increasingly highlighted its importance. This paper will combine the current economic policy background of China, deeply analyze the ESG system framework and explore whether domestic ESG information disclosure is very important for enterprises, because it will affect the status and value of the enterprise itself in the market. At the same time, most theories believe that this disclosure has a strong and far-reaching effect for an enterprise or investor to attach importance to the improvement of ESG performance and encourage the government to expand and play ESG incentive policies.

Keywords: Double carbon strategy; Capital market; ESG.

1. Introduction

The ESG concept with green development, social responsibility and governance efficiency as its core has been subtly occupied the highland of commercial and gradually huge capital market

At the recent KPMG Climate Change and Sustainable Development Summit, John McCalla-Leacy, the managing partner of KPMG International ESG, said that ESG was not limited to climate. In terms of the development and expansion of governance, society and environment, if we actively use ESG, then it can play a role of far more than the risk of enterprises, but also help enterprises prepare to become the trend leader with higher transparency, stronger resilience and greater sustainable development ability.

At the summit site, KPMG China released the latest report in the field of ESG, the 2022 Sustainable Development Report Survey, which observed the ESG reports of 5800 enterprises in the world, including China, to analyze the progress and trend of enterprise ESG information disclosure practices.

Zhu Wenwei introduced that KPMG combined multi-dimensional ESG hot topics with the latest trend of China's development to sum up three important directions of China's sustainable development report: first, analyze important issues and promote stakeholder participation; The second is to complete the "two-carbon" plan we expect, and then to meet the fate of climate change; Third, improve the ESG disclosure standards, improve the credibility of the assurance enabling enterprise report, and explore win-win opportunities.

When talking about the new trend of China's ESG development, Shen Ying, KPMG's partner in charge of climate change and sustainable development in China, said that the ESG disclosure standard would be further improved. In the past year, regulators and standard setters of non-profit organizations around the world have taken major actions in non-financial disclosure, and China has also issued the first voluntary guidance on ESG information disclosure for enterprises. China urgently needs to keep up with the pace of the global reporting system, in order to better adapt to the development, we need to always adhere to the information disclosure standards, but also want to conform to the international standards, conform to the characteristics of China's economic development of information disclosure standards established into our plan, so can to the enterprise on the ESG information disclosure mechanism of high-quality efficiency development play a role.

Shen Ying believes that in the future, the role of ESG as a "filter" will be further strengthened. High-quality ESG information disclosure helps enterprises communicate their vision and opportunities for sustainable development to stakeholders, and is also crucial for enterprises to obtain financing from the market and improve market value.

"China is actively implementing the 'double carbon'. In terms of strategic requirements, companies must be involved in the global system to achieve low-carbon production, in order to cope with the changeable weather. As time goes by, many companies and enterprises have begun to plan their carbon emissions, and also control them within a certain range, so as to achieve truly low carbon, which reflects their role not only in carbon credit.

We expect that 2023 will be a year from discussion to action," said Shen Ying.

To address the globalization of decarbonization and the full use of energy, Mike Hayes, managing partner of KPMG International Decarbonization Center of Excellence, stressed the importance of accelerating innovation at the summit. He said that at present, investors have realized that if the investment object does not properly deal with internal decarbonization and climate risks, both physical risks and transformation risks will have a negative impact on the investment value. "An investor needs to pay attention to the change of investment income, but also to solve the problem in a timely manner. This means that global enterprises need to develop clear and effective climate strategies, otherwise it will become increasingly difficult to obtain equity and bonds in the global capital market in the future."

Mike Hayes believes that in order to realize the full use of energy and the importance of low-carbon globalization, which must be addressed with a lot of forces. However, innovation itself is not only to find new solutions, but also to dig into existing solutions to reduce costs as much as possible which will try our best. What is obvious is that real innovation is not just in science and technology, but also needs to be pursued continuously in climate finance, carbon market use and many other fields.

As for new energy storage to help energy transformation, Kang Yong, chief economist of KPMG China, believes that the scale of global energy storage is growing very quickly as we know and most people think that China has a lot of energy reserves around the world.

Pumped storage seems common to us, but he quietly contributes a lot to the storage of the power system, as a powerful presence, many new energy storage methods represented by electrochemical energy storage are developing rapidly. According to the prediction of CNESA, and installed capacity of 1138.9GWh is already foreseeable in the future energy storage industry by 2027, with a compound growth rate of 61% from 2021 to 2027.

Kang Yong said that the growth rate of electrochemical energy storage in China is expected to be higher than the global growth rate. According to CNESA data, China's total installed capacity of chemical energy storage reaching 363.1GWh has been foreseen in the future energy storage industry by 2027, accounting for about 32% of the global total, and the compound growth rate will reach 71% from 2021 to 2027, 10 percentage points higher than the global growth rate. It will be the main incremental market of the energy storage industry in the future.

When looking forward to the future development trend of energy storage, Kang Yong analyzed that on the user side, domestic industrial and commercial energy storage and overseas household energy storage have developed rapidly, and the downstream market competition pattern has put forward different requirements for the core competitiveness of Chinese energy storage enterprises. However, due to the low-price competition caused by the single income model, safety and sustainable development deserve attention.

According to the research of KPMG, the current typical gross profit level of enterprises in all links of the new energy storage industry chain is not more than 30% (the gross profit rate of the diaphragm link of the electrochemical energy storage battery is about 50%), and the gross profit rate level of many listed energy storage enterprises has also shown a downward trend. In addition, the long-term prospects of independent energy storage power stations are good, but the implementation of short-term projects is still weak; The capital boom needs cold thinking, and the high-quality energy storage track and target need to be carefully screened.

2. Literature review

ESG is clearly a term about governance, society and the environment, which reflects the interdependence of this idea and investment. It is an extension and enrichment of the concept of responsible investment.

The ESG investment concept refers to the investor's the profitability of the enterprise and some related matters about the finance of the enterprise, the value and market of the enterprise are analyzed from the perspective of corporate governance, environment and society.

At present, domestic scholars have studied more and more ESG information disclosure under the dual-carbon strategy. Wang Kai (2022) put forward the concept of ESG fund, which is an investment product that incorporates non-financial indicators. In our opinion, these three concepts play an important role in the use of enterprise investment decisions, which can make the investment process have a long history. China also attaches great importance to it, but their development is not yet mature. Xu Guanghua (2022)'s study of ESG information disclosure in the capital market is very well in place., value based on the data of manufacturing companies. Later research shows that if an enterprise can achieve good information disclosure, then its position and value in the market will become higher and higher.

Some scholars have proposed the relationship between ESG information disclosure and enterprises. Lv Yili (2022) proposed that in fact, if the enterprise attaches great importance to the development of ESG and can develop well. Then such a situation also has an irreplaceable existence for the social and economic promotion. Guo Yuchen (2022) also thought that under the guidance of the "double carbon target", China is accelerating the construction of the ESG system, in which the enterprise ESG information disclosure is the key link of the ESG system. Under the background of "double carbon target", domestic ESG information disclosure has problems such as imperfect disclosure system, immature disclosure standards, and imperfect evaluation and supervision mechanism. Wang Linlin (2022) found that the better the ESG performance of enterprises, the higher the enterprise value. And in some cases, ESG performance is a factor if they want to reduce their financial risk. Further analysis found that for non-state-owned enterprises, enterprises with good institutional environment and high efficiency of information transmission, ESG performance has more obvious effect on value promotion.

Some scholars have also studied the ESG evaluation system. Liu Ying (2022) summarized the ESG performance and information disclosure characteristics of Chinese enterprises, including bond market issuers and A-share listed companies, based on the China Bond ESG evaluation system and the China Bond ESG database., The ESG information disclosure of Chinese enterprises continues to improve. The proportion of disclosure of different types of enterprises is significantly different. In fact, the results of each ESG indicator are different, so there is still a lot of room for progress in this area. An Guojun (2022) deeply analyzed the ESG system framework and discussed the development status and trend of the domestic ESG system based on the current economic policy background of China. Bai Murong (2022) proposed to achieve the system functions while breaking through the difficulties. At this stage, the necessary task is to establish a unified ESG evaluation system, and to continue to improve before this foundation, clarify the core position of directors, refine the obligations and responsibilities of directors, senior executives and intermediaries in ESG information disclosure, establish relatively standardized reporting contents and procedures, and build an ESG information disclosure regulatory system, Define and implement the ESG information disclosure responsibilities of relevant subjects.

At the same time, foreign countries have also carried out relevant research on the ESG evaluation system. Wang Kai (2022), on the basis of sorting out the situation of 14 famous ESG rating agencies at home and abroad, compared and analyzed the ESG evaluation systems of various rating agencies, and found that the existing ESG rating system in China has core problems such as poor information disclosure quality, inconsistent ESG rating results, and imperfect ESG ecosystem, and accordingly put forward some suggestions for the future development of ESG in China.

3. Development status of ESG system and performance of capital market

3.1. International ESG system

The concept of ESG was initially proposed by the UNEP Finance Initiative in 2004, and the Principles for Responsible Investment (PRI) was issued in 2006 to promote investment institutions to incorporate ESG indicators into investment decisions. After the accession joined the Paris Agreement, the United Nations is gradually established, there are a large number of ESG principles on the international market. At the exchange level, the NASDAQ Exchange and the London Stock Exchange have both issued the ESG Reporting Guide, and to get closer to the target, the United Nations has also made efforts on sustainable stock exchanges to guide listed companies to improve ESG information disclosure. By comparing the development of ESG systems in various countries, what is obvious is that there are differences in the economic level and the rationalization of the goals set by each national government department, the development path of ESG in the major mature markets in the world is different, but attention should be paid to the two major driving mechanisms of ESG regulation. They have issued complete ESG information disclosure systems and guidelines to guide listed companies to prepare ESG reports. We can see that almost all markets regulate sovereign funds, pension funds, etc., and they also put these decisions into ESG's investment decisions.

The development path of the international ESG system mainly includes the following aspects.

3.1.1. The policy subject is guided by the government and driven by the market

Governments of all countries have consistently promoted the development of ESG policies, and EU countries, Singapore, Japan and other countries have taken the lead in advocating ESG disclosure of listed companies. Establish the ESG information disclosure framework and principles in the form of formulating laws and regulations, issuing standard guidance, issuing guidance, etc., and strengthen and promote them by the capital market.

3.1.2. Disclosure requirements from voluntary disclosure to mandatory disclosure

developed from "encouraging voluntary disclosure" to "interpreting without compliance" by formulating legal provisions, At the same time, the structure and framework of information disclosure are also improving, and many listed companies are emerging in different countries, which is to disclose social responsibility reports at the initial stage of policy release, and then propose to disclose ESG-related information, and finally require enterprises to disclose sustainable development capabilities. Advocate the exchange between investors and investment institutions and enterprises, require listed companies to improve the diversity and independence of directors, and disclose the participation of stakeholders.

3.2. Domestic ESG system

Domestic ESG system The Guiding Opinions on Building seven departments, including the People's Bank of China and the Ministry of Finance, made extraordinary decisions in 2016 when they unveiled the green finance system is China's first systematic green financial policy framework. In recent years, driven by the "double carbon" goal, government departments have accelerated the introduction of ESG information disclosure related policies. Since 2021, the CSRC has revised the format criteria of the annual and semi-annual reports, added a new chapter of "environmental and social responsibility", encouraged companies to voluntarily disclose the measures and voluntarily disclosed relevant information that is conducive to protecting the environment, preventing and controlling pollution, and fulfilling environmental responsibilities, which has a significant role in promoting the ESG information disclosure of listed companies. In this case, China's Department of Ecology and Environment issued the document to explain that we will complete the institutional plan for mandatory information disclosure by 2025. It can be predicted that China's ESG information disclosure system will be improved under the drive of the "double carbon" goal

At present, the ESG evaluation system used by China's financial institutions, certification agencies, rating agencies, etc. It includes the first level of three aspects According to the screening of general indicators and industry indicators, it forms the second and third level indicators, and realizes the multi-level evaluation system. The use of big data technology covers representative, we need to do our best to collect non-financial data and also act as providers. To cater to the strategies set out by the United Nations and China, social responsibility bonds and sustainable bonds have been valued by governments in the global market. On November 12, 2021, Bank of China held the listing of six sustainable development (ESG) bonds on the London Stock Exchange, with a total amount of 2.2 billion dollars. Since 2021, China's carbon market has been gradually and steadily launched, and has achieved great success after its launch. As of November 16, 2021, the national carbon market has operated for 80 trading days. The cumulative trading volume of carbon emission quota is 27.03 million tons, and the cumulative trading volume is 1.193 billion yuan. The spot trading volume of China's carbon quota is 4 times that of the European Union's carbon market in the same period, and 18 times that of the Korean market, and it is the largest carbon trading market in the world.

4. Mechanism of empirical research

4.1. Research method

For further analysis, we will consider these aspects in this paper. We should not only explore the impact of the overall ESG score on the capital market, but also study their respective impact from three aspects: E, S and G.The third is to classify enterprises to explore the differences in the impact of ESG on EPS of listed companies in different industries. In view of the above research contents, this paper deeply discusses the current domestic and foreign ESG evaluation system framework, there is also a lot of literature on the impact of ESG on companies. So combined, we should give full play to the sustainable development theory and the stakeholder theory, this paper puts forward the research hypothesis that ESG scores have a promoting effect on enterprise EPS scores and that the impact of environment (E), society (S) and corporate governance (G) on enterprise EPS is different among industries.

4.2. Correlation theory

4.2.1. Theory of sustainable development

The primary principles of sustainable development theory are commonality, sustainability and fairness. Fairness is vertical fairness, that is, the future development will not be affected by the present society. What we are saying is sustainability is reflected in the possibility of using limited resources to exploit economic growth, and that growth is reasonable. And what we say is common needs to take into account the common development of society.

4.2.2. Stakeholder theory

Including participants in the theory of stakeholders, it is part of business management in the industrial chain of enterprise production and operation, as well as residents and shareholders of nearby communities. Stakeholders have a vital impact on the development of the company. Their main function is to share the business risks of the enterprise. When the enterprise has risks, stakeholders will also pay a price.

5. Empirical analysis of the impact of ESG on capital market

The density peak clustering algorithm is based on: The density of the cluster sample points is smaller than the density of the surrounding collar points, and the distance between the cluster center points and the high-density points present is also very large. Therefore, for each sample data point Xi, there is a local density value Pi. When the data point dispersion is high, the local density value Pi is calculated by weighting through the formula.

$$P_i = \sum_j x(d_{ij} - d_c)$$

When the continuity of data points is high, the local density value Pi is calculated by formula weighting.

$$p_i = \sum_j ecp\left(-\frac{s_{ij}}{d_c^2}\right)$$

The density peak clustering analysis calculates the distance between different data points through Euclidean distance. Assuming the existence of Xi and Xj, the distance formula can be deduced as follows:

$$dist\left(x_i, x_j\right) = \sqrt{\sum_{i=1}^{n}(x_i - y_i)^2}$$

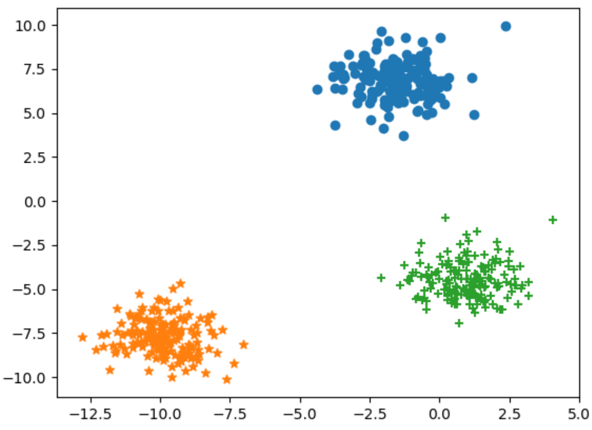

Figure 1. Cluster distribution map

Dist represents the truncation distance. The DCPA result is affected by its value. This parameter is usually determined by the first 1.0%~2.0% of the ascending sorting distance of data points. Therefore, there is a truncation distance for different data sample points Xi δ i. When the data sample point Xi is at the maximum local density, δ I mean the distance between the largest data point in dataset S and Xi. After the density peak clustering analysis, three central points of density clustering are obtained, that is, the ESG system can be divided into three types of impacts, see Figure 1.

6. Research conclusions and problems

6.1. Incomplete disclosure system

The realization of the dual-carbon goal depends on the accurate measurement and timely disclosure of enterprise ESG information, including carbon information. At present, most of the enterprises in China's capital market voluntarily participate in information disclosure work, and mandatory disclosure is only auxiliary work, and such work is only for listed companies, debt-issuing enterprises and central enterprises regulated by the policies of different departments such as securities, environmental protection and state-owned asset management. The content of mandatory disclosure is also mostly concentrated on local issues of social and corporate, we can only make information disclosure to a limited extent. Some heavily polluting enterprises and environmental illegal enterprises that are required to be forced to disclose are passive disclosure after the event under the pressure of environmental protection supervision, and fail to play the role of ESG information disclosure in constraining corporate behavior and risk disclosure, and fail to realize the decision value and legitimacy value of ESG information to stakeholders. The current ESG information disclosure system needs to be further improved in the context of the implementation.

6.2. Inadequate disclosure standards

Although the dual-carbon target has been officially put forward for more than a year, China currently lacks the enterprise ESG information disclosure standards or industry norms that are comprehensive, systematic, mature, consistent with the actual situation of the country, integrated with various systems and in line with international standards, which will have a negative impact on the implementation of the existing enterprise ESG information disclosure system and the policy effect. The lack and immaturity of standards have led many enterprises to disclose ESG information without rules and regulations, while the disclosure requirements of the regulatory authorities are difficult to be fully implemented: enterprises have many promotional elements and small narrative space, long descriptions but little data content, and there are large gaps in the scope and quality of the disclosure content. At the same time, the lack of disclosure standards of local enterprises has also caused some difficulties for Chinese enterprises to go global, increased the difficulty and cost of the integration and compatibility of enterprise ESG information with international standards, it has had a profound impact on the planning of Chinese enterprises and the improvement of international standards.

6.3. Incomplete evaluation and supervision mechanism

One of the functions of ESG information disclosure is to provide basis for ESG evaluation and even ESG investment and financing, which is the basic link of the ecological construction of ESG system. At present, there are many ESG evaluation systems in China. The standard of evaluation has not been unified, and the evaluation system is still in the experimental period. It is difficult to impose normative requirements and pressure on the ESG information disclosure of enterprises, From another aspect to the ESG information disclosure of enterprises in the market, and augment the current situation of insufficient motivation for enterprises to independently disclose high standards through supporting ESG system mechanisms. The imperfection of ESG disclosure supervision mechanism from regulatory authorities and the market also restricts the implementation level of ESG disclosure of enterprises. At present

The mandatory disclosure system developed by the department has not been detailed to the supervision of ESG/social responsibility report, and the system gap has been exposed to the low standard disclosure of enterprises

7. Suggestions and prospects

7.1. Improve ESG policies and regulations

How to better promote the development of ESG and improve ESG policies and regulations. We are particularly willing to work with the Federation of Industry and Commerce to further improve these policies, including regulatory agencies, SASAC and other investment institutions, if they want to involve all enterprises.

7.2. Guide ESG investment

We should also actively guide ESG investment. The logic of ESG investment is to encourage enterprises with better environment, society and governance and obtain more low-cost funds through ESG investors' attention to social responsibility. Investment is very important for the guidance of ESG. If enterprises do not have strict requirements from regulatory authorities, it is difficult to say that they will pay attention to it.

7.3. Strengthen ESG publicity and training

Now central enterprises are doing ESG work, and we are also doing ESG publicity work. Show a small video. CCTV will launch a series of activities of "China ESG Model" this year. We will work together to promote our work. We also hope that you can participate actively.

7.4. Accelerate the construction of China's ESG standard system

The ESG system includes disclosure, evaluation, investment and other fields, and various institutions are doing it, such as the National Standards Commission and the National Institute of Standardization. I also participated in their research, hoping to build a Chinese standard system. There is also a very important point here. ESG must be Chinese. ESG concepts and values are universally accepted, but its practice and evaluation criteria should be combined with local practice. As for the basic principle, we talk about the social responsibility parties, the Americans and the British help the Chinese to evaluate whether Jiang Xipei's Far East can better fulfill its social responsibility. This logic doesn't work. Therefore, we should make it Chinese, especially the evaluation criteria. Next, we are working with them to explore whether the CCTV ESG model can better do some work in the standardization of China.

7.5. Support domestic institutions to carry out ESG evaluation

When foreign institutions such as Mingsheng, FTSE Russell and Bloomberg make comments, they will comment on Chinese companies. Their comments on Chinese companies will be discriminatory. They also look at our enterprises with certain ideological concepts. Their evaluation should be to see the enterprise on behalf of our stakeholders. Therefore, we should take an objective view of the evaluation results, encourage more institutions to carry out ESG evaluation and launch products that are conducive to evaluation. This matter is not done by one institution. It can be encouraged by many institutions. It can be viewed from different perspectives to better promote social responsibility and promote sustainable development.

7.6. Improve ESG governance and information disclosure

ESG has a basic logic and concept. It is the responsibility of stakeholders. What you do and how to do it must be told. This is also a very important basis for rating agencies to evaluate you. Therefore, we often say that Chinese people are more introverted and do well by themselves. It is not necessary to say hard that the actual ESG should not only do well, but also say well. To be clear, should we have some regulations and standards? Compared with foreign countries, there is still a gap in this respect at home. Let's work together to do a good job.

We often talk about social responsibility, creating social value, and responsible investment. I summarize the concept as: fulfilling social responsibility, creating social value, guiding responsible investment, and promoting sustainable development.

Acknowledgements

Supported by the undergraduate scientific research and innovation fund of Anhui University of Finance and Economics (XSKY22034ZD)

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