

Study on the Economic Consequences of Environmental Information Disclosure of Heavy Industry Enterprises: Taking Sany International Heavy Industry Holdings Limited as an Example

Yangmiwen Yu

School of Accounting, Zhejiang University of Finance & Economics, Hangzhou, Zhejiang Province 310000, China

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Abstract: Under the new economic normal, China is paying more and more attention to the environmental disclosure of listed companies. In 2024, Shanghai, Beijing and Shenzhen Stock Exchanges announced guidelines for mandatory disclosure of sustainability reports by listed companies. However, the call for mandatory disclosure has not received the echo it deserves. Some companies still pay little attention to information disclosure, or even avoid environmental information disclosure. In addition, there are problems such as falsification and irregularities in the disclosure information of disclosed companies that need to be addressed urgently. This study examines and analyses the short-term and long-term economic consequences of re-disclosure for a Hong Kong-listed company that has disclosed Environmental Social and Governance (ESG) reports for four consecutive years. The study starts in terms of the positive, neutral, and negative impacts of financing, share price, stakeholders, and so on. It aims to change the mentality of the enterprise and to make them more focused on long-term benefits while facing the short-term negative impacts. It could promote listed companies to pay attention to, standardize and completely disclose of environmental information. While enabling listed companies to fulfill their social responsibilities, non-listed companies are encouraged to actively disclose environmental information.

1 INTRODUCTION

1.1 Background

In recent years, environmental information disclosure has attracted much attention from the international community. As an effective means of promoting the implementation of the main responsibility of ecological and environmental protection by enterprises, Environmental information disclosure also plays a role in allowing the public to participate in and supervise that at environmental pollution control of enterprises and is committed to promoting the soundness of the ecological environment governance system.

The State Environmental Protection Administration (SEPA) took the notice on Disclosure of Environmental Information of Enterprises issued in 2003 as a starting point.

In 2008, the Measures on Disclosure of Environmental Information (for Trial Implementation) promulgated to extend the subject of information disclosure to enterprises. It is a milestone in improving the govern

ance and monitoring of environmental information. Subsequently, in 2014, the newly revised Environmental Protection Law set up a special chapter, requiring that the information disclosure of heavy polluting enterprises was changed from voluntary to mandatory. Then, in 2021, the Ministry of Ecology and Environment launched the "Reform Program for the Legal Disclosure of Environmental Information". It gradually improved the linkage construction of the information disclosure system. In April 2024, under the unified deployment of the China Securities Regulatory Commission, Shanghai, Beijing and Shenzhen Stock Exchanges officially issued guidelines for the sustainability reporting of listed companies, making it mandatory for listed companies to disclose sustainability reports. At the same time, other companies are encouraged to make voluntary disclosures. They disclosed information through publishing Environmental, Social and Governance (abbreviated as ESG) report.

In the past two decades, China has successively announced relevant laws on environmental information disclosure. It was from the beginning of the indepe

ndent formulation of departments to the current multi-department joint formulation, from voluntary to mandatory. Environmental legislation gradually adapts to economic development with the continuous refinement of content and the gradual improvement of laws and regulations.

1.2 Purpose and Significance of the Study

Due to some effects of multiple factors such as spontaneity or market orientation, such as the negative impact of some surpluses and costs in disclosure, the quality of environmental information disclosure is not high. It does not play the role that the environmental information disclosure system should have.

But risks and opportunities could exist at the same period. The purpose of this study is to make enterprises face up to the short-term negative impact of standardized environmental information disclosure. Company should attach more importance to long-term benefits and actively assist in completing the company's mentality change from "Be wanted to disclose" to "I want to disclose". From another perspective, the study can gain the positive green transformation of some high-energy-consuming enterprises proposed by Zeng Xianglan(2024). They also strengthen surplus management. They would like to use environmental information disclosure to let investors see the company's reflections to environmental protection and the prospects for sustainable development.

1.3 Study Methodology

1.3.1 Case-Study Method

This study adopts the case study method and selects Sany International Heavy Equipment Holdings Company Limited (hereinafter referred to as Sany International). This study compared and summarized its economic situation before and after the disclosure of environmental information and over a period of time.

1.3.2 Documentary Research Method

Through searching and reading some literature related to environmental disclosure information of heavy pollution and heavy industry, this study could provide an in-depth understanding of environmental information disclosure. It organized and analysed the status quo of environmental information disclosure from various aspects. This provided a theoretical basis for researching a single case and comparing it with the market.

1.4 Literature Review

Gao Tiantian (2024) believes that the impact of general corporate environmental accounting disclosure on firm performance was positive. The reason was to increase the transparency of information. Lu Taiheng et al. (2024) concluded that voluntary environmental information disclosure regulation could promote the high-quality development of firms by reducing information asymmetry and minimizing the risk of corporate greenwashing. Meanwhile, Yao Yuanyuan (2024) mentioned that accelerating the system of information disclosure could help boost the high-quality development of enterprises. However, heavily polluting industries have disadvantages in environmental information disclosure. The state of disclosure in the field is not optimistic on a voluntary basis. The introduction of the mandatory disclosure system has pushed the situation of inaccurate environmental information disclosure to a higher level.

From the environmental basis, Shi Jiawei (2024) mentioned that in the context of dual-carbon, the practical disclosure of environmental information can better observe the carbon emission situation and solve the problems therein.

From the financial level, Li Tao et al. (2023) believed that some firms use information asymmetry to reduce or whitewash the concerns of investors and stakeholders. Tong Youxia (2024) summarized based on some studies that corporate executives will engage in short-sighted behaviors in order to increase their compensation, thus manipulate enterprises to increase selective disclosure.

From the investor level, Cui Haitao et al. (2024) said that so far, research shows that China is still dominated by neutral investors. They care more about profitability than a series of improvements that drought about by corporate environmental disclosures, and of course, the consequences. Instead of environmental disclosures being geared toward investors, they are more geared toward regulation to gain sympathy.

2 RELEVANT CONCEPTS AND THEORISE

2.1 ESG Information Disclosure in the Context of Sustainable Development

Liu Zhao (2024) argued that ESG information is an influencing factor in determining whether a firm is sustainable or not. At the same time, the disclosure of i

Information could also reflect the transparency of the firm's decision-making. In the context of sustainable development, ESG reporting is a way for companies to do their part to protect the environment and social responsibility while ensuring economic benefits.

2.2 ESG under the Theory of Information Symmetry

The theory of information symmetry says that under market conditions, in order to reach a fair transaction, the information held by both parties to the transaction must be symmetrical. But so far, this is a kind of ideal situation in the trading environment. Most transactions are still the seller with the most information and the buyer with a small amount of information. In information asymmetry still exists. The disclosure of ESG reports can provide a platform for enterprises to disclose information. If the information disclosure is transparent, standardized and completed, it will enable the buyers to have the same information. This behavior could make the market gradually move closer to the symmetry of information between buyers and sellers.

2.3 Signaling Theory and Cohort Effects

Shao Peng et al. (2023) mentioned that signaling theory refers to the fact that firms will choose to actively disclose information to the outside in order to avoid adverse selection caused by information asymmetry. It could as a way to reduce the disadvantages of buyer and investor decision-making due to insufficient understanding of the business.

The cohort effect refers to the fact that under the condition that all firms disclose environmental information, companies that disclose more will be under greater pressure than those that disclose less. Companies which disclosed are under more pressure than those that do not.

2.4 The Moral Responsibility Hypothesis and the Opportunism Hypothesis

Cui Haitao (2024) argues that the ethical responsibility hypothesis means that there is a significant positive relationship between the transparency of corporate environmental information and surplus management. In addition, the disclosure of environmental information by enterprises demonstrated that they have a sense of social responsibility and abides by social ethics. Such firms have less manipulation of surpluses. The quality and reliability of accounting information has

ve dramatically improved. The opportunism hypothesis refers to the fact that firms disclose environmental information in order to conceal their own opportunistic behavior. On the one hand is to make investors pay more attention to environmental disclosures, so as to reduce or even ignore the concern on earnings. On the other hand is to make the regulators think that enterprises have a high level of social morality, thus relaxing the focus on corporate earnings management

3 MOTIVATION ANALYSIS

3.1 Objective Reasons

According to the existing theories and laws, environmental information disclosure is not fully regulated. Some enterprises still exist problems such as disclosure falsification, non-standard disclosure, poor quality of accounting information disclosure, inactive disclosure and other issues.

3.2 Subjective Reasons

After the implementation of the Mandatory Disclosure Ordinance, the time limit is one year. However, the number of ESG reports that can be publicly available on the official website within half a year is limited. It reflects that the disclosure of sustainability reports is not active. And there may be a lack of attention internally or at a high level.

4 RESEARCH RESULTS

Sany International is the second largest core enterprise of Sany Group, established in the Cayman Islands on July 23, 2009. On November 25, 2009, it was officially listed on the main board of the Stock Exchange of Hong Kong Limited. Sany Group has a number of patented technologies and is committed to the research and development of large-scale coal machinery equipment, with a wide range of products and many types. At present, Sany International occupies an important position in the industry as a leading heavy energy equipment supplier and a large-scale logistics equipment manufacturing enterprise. Three major strategies being implemented by Sany are globalization, digital intelligence, and low-carbonization.

Up to now, Sany International has released corporate ESG reports for four consecutive years. It is one of the few listed companies that has started to publish ESG reports since voluntary disclosure. According

to the relevant data of Eastmoney, the study found the following economic consequences.

4.1 Financing Perspective

As Table 1 follows, the composition of Sany International's shareholders and directors has hardly changed in the past four years. According to the Table 1, director Zhang* did withdraw during the environmental information disclosure period. However, since Sany International has not yet made environmental disclosures, director Zhang* has gradually reduced his share holdings. Therefore, the impact of this behavior on the disclosure of information is almost zero. Equity holders did not lose confidence in Sany International because of its disclosure of ESG reports. Thus conclusions can be drawn that the disclosure of ESG reports did not have a material impact on Sany International's financing apart from natural fluctuations.

In the ESG report disclosed on the official website of Sany International, it is shown that they adopted energy-saving and emission-reduction technologies and attached importance to resource recycling. And they actively presented this advantage to investors to demonstrate the response to China's advocacy of environmental protection. This is conducive to Sany International to enhance its corporate image. It could make investors believe that it has sustainable prospects and are willing to provide financial support for it. This behavior also attracted more margin trading. At the same time, the information symmetry brought about by good environmental performance and adequate information disclosure can reduce financing risks. In addition, the financial institution will give a lower financing interest rate at the time of assessment.

However, for small and medium-sized enterprises (SEMs), environmental information disclosure needs to invite professionals. Hiring a professional agency to collect and collating reporting data may put a certain burden on SMEs. As a result, the profitability of the enterprise will be affected. The pressure on the enterprise will increase when financing. Heavy polluting enterprises also have the problem of exposing environmental risks. If there are problems with the results of the disclosure, it can cause concern for investors and suspicion from regulators.

Table 1: Sany International's 2018-2023 Shareholder and Director Holding Ratio.

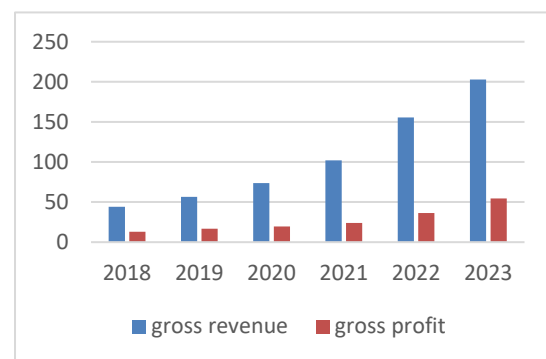
Year	2018	2019	2020	2021	2022	2023
Shareholder						
Sany Hong Kong Group Limited (Shareholder)	85.97%	83.21%	82.48%	81.74%	81.51%	80.54%

Sany Heavy Equipment Investment Co., Ltd. (Shareholder)	85.97%	83.21%	82.48%	81.74%	81.51%	80.54%
Liang* (Shareholder)	86.33%	83.56%	82.83%	82.09%	81.86%	80.88%
Fu* (Director)	0.20%	0.10%	0.05%	0.02%	0.13%	0.11%
Qi* (Director)	0.20%	0.10%	0.08%	0.04%	0.21%	0.28%
Zhang* (Director)	0.14%	0.07%	0.04%			
Xiang* (Director)	0.09%	0.09%	0.09%	0.09%	0.09%	0.09%
Tang* (Director)	0.07%	0.07%	0.07%	0.11%	0.11%	0.17%
Pan* (Director)	0.03%	0.03%	0.04%	0.03%	0.03%	0.03%
Hu* (Director)	0.03%	0.03%	0.03%	0.03%	0.03%	0.03%
Wu* (Director)	0.03%	0.03%	0.03%	0.03%	0.03%	0.03%

The data is taken from Eastmoney.

4.2 Cost Perspective

Figure 1 shows the relationship between Sany International's operating income and gross profit. It can indirectly represent the profitability of Sany International. Since the disclosure of ESG reports in 2019, Sany International's profit data has been still impressive, showing an upward trend year by year. The production cost of its input has been also rising year by year. It is not excluded that the influence brought by the position in the industry and the normal trend will improve the sales situation. The ESG report disclosed on its official website mentions that Sany International is increasing the automation rate. In order to reduce the harm caused by noise and vibration, and ensure the safety of staff.



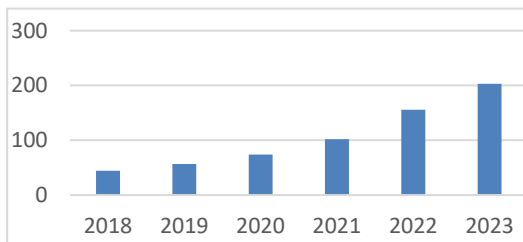
The data is taken from Eastmoney.

Figure 1: Sany International's profitability index chart (unit: 100 million RMB).

Although in the short term, enterprises will introduce advanced new materials, machinery and technologies due to transformation which will increase costs. But in the long run, enterprises will reduce consumption and waste because of advanced production models. The production efficiency will also continue to improve in the process of exploration. And there is no need for additional equipment for pollution control and discharge. These in turn reduce operating costs in the long run. In addition, it can also reduce the potential risk of being questioned. It is easier to leave a good impression on investors, Sany International independently updates and optimizes the production model. It can also reduce the probability of being punished by relevant departments for pollution and other problems, and thus need to pay compensation. It is also a way to save costs for enterprises.

But neither sustainable development nor environmental governance can be achieved overnight. In order to show a better look of the enterprise to the outside world, in addition to the costs of data collection and analysis by professionals and institutions mentioned above, companies also need to establish a sound environmental management system. And the construction of system work is a big project. Not only does it need to be invested at the beginning, but it also needs to be regularly maintained and updated in the subsequent development. This is a challenge for small and medium-sized enterprises and companies that are not optimistic about their profitability and those who are inherently cost-sensitive.

4.3 Competitiveness Perspective



The data is taken from Eastmoney.

Figure 2: Total operating income of Sany International (unit: 100 million RMB).

Figure 2 shows that Sany International's operating income has not had a side effect due to environmental information disclosure, but has increased. It is not excluded that the impact of increasing popularity and expanding the scale of enterprises will be excluded.

Sany International actively fulfills its social responsibilities and enhances its corporate image to the public through the release of ESG reports. From the four

years of the annual update of the data and rectification of the module, combined with its profitability. The accumulation of these favorability points will also increase Sany International's market share in the industry. At the same time, this kind of active cooperation with the environmental protection policies issued by the state will enhance the credibility of enterprises. It will also allow it to be given extra points when participating in government large-scale project bidding and other cooperation links with the state. They could get more opportunities and attract more green investors and partners.

However, companies that are not optimistic about the results of environmental information disclosure will still have an impact. Exposing a company's environmental problems can damage the reputation of some companies. As a result, the company has fallen into a disadvantaged position in public opinion or risk evaluation. The core of it is still to self-examine and carry out sustainable development operations before disclosing. It is not advisable to demand only results without taking action.

4.4 Stock Price Perspective

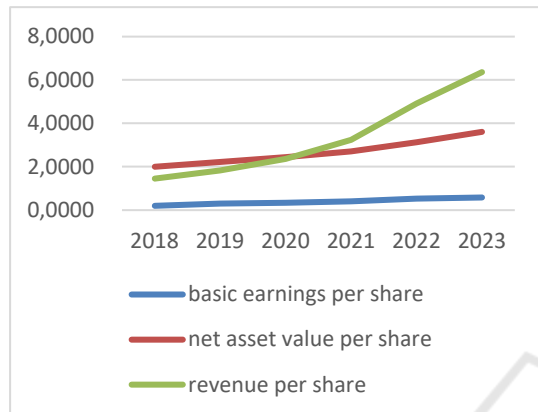
After Sany International disclosed its ESG report for the first time in 2020, the stock price showed an upward trend in Figure 3 and Figure 4. It is also not ruled out that the impact of the epidemic will become smaller, the scale of enterprises will expand and the market will recover.

Sany International's positive environmental information disclosure gives investor confidence. It is closely related to the specification of its disclosure content and the fact that the situation is true. Sany International is one of the few listed companies that actively publishes ESG reports during the voluntary disclosure period. Four consecutive years of release and longer rectification and optimization have made Sany International achieve tangible results in environmental protection. It boosts investor confidence. The uncertainty caused by information asymmetry is reduced. And it drives the stock price up and increases the company's market capitalization.

Sany Group's long-term, continuous and transparent environmental information disclosure is conducive to cultivating and attracting long-term investors. Even if there is inevitably some volatility, equity holders do not withdraw their capital hastily. Instead, they will be thoughtful and allow time for companies to retain investors.

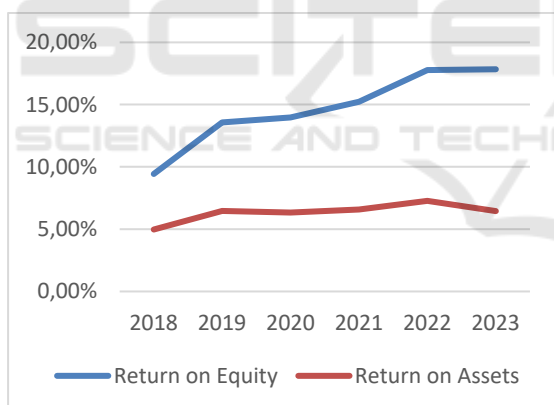
However, at the same time, enterprises will also face market doubts about the adequacy and accuracy of the disclosed information, which will attract the at

tention of the regulatory authorities. Serious cases may face the risk of legal action, regulatory penalties. Enterprises with environmental problems in their original bodies, after rectification, may bring long-term doubts from the market and public opinion. The stock price will not only be affected in the short term, but also suppressed in the long term. Until something more excessive attracts the attention of the market.



The data is taken from Eastmoney.

Figure 3: Sany International's per share index chart (unit: RMB).



The data is taken from Eastmoney.

Figure 4: Sany International's return on investment index.

4.5 Stakeholder Perspective

The disclosure of environmental information breaks the information gap. While reducing the impact of information asymmetry on enterprises, it also allows investors to put forward development suggestions for enterprises based on the disclosed information. Sany International's active disclosure will strengthen the relationship between investors and the company. It could carry out more targeted update and optimization. To a certain extent, it will reduce the pressure of public

opinion and reduce the resistance to development. It will make the regulator feel that the company respects and values environmental protection laws. This method reduces regulatory costs while building a good image.

While the market and enterprises guide green consumption, consumers may have concerns about the authenticity of corporate information disclosure. However, in reality, some companies may exaggerate their efforts and contributions to environmental protection in order to establish a good brand image, or use such information to cover up a larger scandal, such as previous financial fraud. Even if the disclosure is certified by the regulatory authorities, consumers may find it difficult to understand and make accurate decisions. It causes the complexity of the terminology of environmental indicators.

5 CONCLUSIONS

Compared with Nanjing Semcorp Waters evasion of information disclosure, eventually, they paid a high penalty and faced reputational damage. Sany International's positive disclosure of its ESG reports is in stark contrast. At present, ESG reports have drawn a red line for environmental protection. Breaking the law comes with a terrible cost. The economic consequences of Sany International can clearly reflect that the benefits of environmental information disclosure outweigh the disadvantages in general. It's critical for companies to make the mindset shift from what they are wanted to disclose to what they want to disclose. It should also be made clear that only accurate and comprehensive environmental information disclosure can achieve sustainable development, improve efficiency and attract more margin financing and securities lending. Instead of generating resistance to ESG report disclosure, companies should pay enough attention to it in order to achieve a win-win situation. At the same time, investors and corporate executives should pay more attention to the future development direction of enterprises and determine the path of sustainable development of enterprises. Investors should also understand the content of environmental information as soon as possible so that they can make more accurate decisions. Nor should the granting body and the regulator relax their careful scrutiny of the enterprise because of proactive or optimistic disclosure.

Among them, in particular, its own environmentally sensitive enterprises should plan well in the process of environmental information disclosure. They should change and update their own first, and then choose the agency to review the disclosure. Sustainable dev

elopment is a long-term front. Environmental information disclosure will become more and more transparent in the future. Firms don't choose to make inaccurate disclosures because of interests. In addition, firms should take care not to conceal major environmental pollution accidents during disclosing information. However, the measurement of environmental indicators of heavy industry enterprises is difficult to quantify and cannot be compared with each other. While formulating relevant laws and regulations, the regulatory authorities should pay attention to improving and updating. It is also a long-term front to establish and improve regulations related to environmental information monitoring. While enterprises should be cautious and attach great importance to deal with environmental risks, the authorities should also set up multiple checking mechanisms to prevent the occurrence of omissions and errors.

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