An empirical study on the influencing factors of environmental information disclosure of Chinese mining listed companies

Li Zhijuan, Zhou Chaoyang

School of Management, Wuhan University of Technology, Wuhan, P.R.China, 430070

*email:2507889472@qq.com

Abstract: This paper conducts the research based on the data of environmental information disclosure of 75 Chinese mining listed companies in 2015. The disclosure of environmental information was extracted from the published annual report information, independent social responsibility report. The size, profitability, financial leverage, ownership concentration, the proportion of state-owned holding of listed companies were selected, whether these factors will affect the environmental disclosure of listed companies is to be found out through this empirical analysis. The results show that there is a significant positive correlation between the size, profitability, financial leverage, ownership concentration and the level of environmental information disclosure of listed companies, among these factors the impact of the company's profitability, financial leverage is relatively large.

Key words: Environmental information disclosure, Influencing factor, Mining industry, Chinese listed companies, Empirical study.

1 Introduction

With the rapid development of economy, the increasingly prominent environmental problems become the focus of people's attention, the environmental information released by listed companies has become an important basis for investors to make investment decisions. The disclosure of environmental information is connected with the financial report of the enterprise. The disclosure of environmental information aims to promote the communication with stakeholders. In the early time, as an integral part of corporate social responsibility report, environmental information disclosure reflected in the company's annual report. Now people pay more and more attention to environmental protection, therefore the public's concern about environmental information disclosure is higher, and the pressure of the company is also bigger. So many listed companies have increased environmental information disclosure in the annual report, some listed companies reveal separate social responsibility reports to the public. Under this background, we carry out this research.

2 Literature review and Hypotheses

The larger the company, the bigger the social influence, the concern of the public, media, government and other institutions is also higher. In order to maintain its image and social reputation, more environmental information will be revealed. Tagesson

(2009) found that the size of companies had a positive correlation with the level of environmental information disclosure. Thus:

H1: The larger the size of enterprises, the higher the level of environmental information disclosure.

In the process of production, when the companies get strong profitability, good business performance, the environmental protection consciousness is stronger, the companies have more resources to put into the environmental protection, and are more responsible for society. Frost (2008) studied the disclosure of environmental information in the annual report of the Australian mining enterprises, the results show that the profitability is related with the corporate environmental information disclosure. Based on this, the following hypothesis was proposed:

H2: The stronger the profitability of enterprises, the higher the level of environmental information disclosure.

In order to ensure financing of the companies, to keep a good relationship with stakeholders, the companies try to reveal more environmental information, which also helps to maintain the stability and reduce the financial risk of the companies. Zheng Chunmei (2013) found that there was a positive correlation between financial leverage and environmental information disclosure. Due to the increase in debt level, enterprises try to relieve the anxiety of shareholders and creditors by revealing more environmental information. Based on this, the hypothesis was put forward:

H3: The higher level of the corporate debt, the higher the level of environmental information disclosure.

Haskins' (2000) study showed that Europe's equity was more dispersed, the requirement of shareholders on environmental information disclosure were also higher, so the environmental information disclosure level were higher; In Asia the information disclosure level was lower because the relative concentration of ownership, disclosure requirements on the report of the shareholders were not as strictly as Europe. Based on this, the research puts forward the hypothesis 4:

H4: The more dispersed the ownership, the higher the requirement of environmental information disclosure.

3 Research Design

3.1 Sample selection and data sources

This research selects 75 Chinese mining listed companies as samples. The Sample data of environmental information disclosure are obtained from the annual reports and the independent social responsibility reports (including the sustainable development reports). The size and net assets income rate of the companies are mainly obtained from Tai an database, hexun.com. After removing the companies which are not complete in the financial statements, ST companies, the companies which have been delisted, finally 75 companies are selected. The reason why we choose the mining industry mainly attributes to the great destruction to the environment during the whole process of exploitation, so it should take larger responsibility to protect the environment, and thus the mining industry becomes the representative of this research.

3.2 Variable research

When the environmental information disclosure index (EDI) is measured, we use the content analysis method to evaluate the information quality of listed companies. According to the 2008 implementation of the environmental information disclosure approach (Trial), the samples are scored. If the company's annual reports with free environment information disclosure get 0 point, descriptive information disclosure are graded with 1 point, 2 points of information disclosure with monetary valuation, independent social responsibility report is to assign 1 point, finally the points are added, which reflect the level of environmental disclosure index (EDI), which are 4 points totally.

Figure 1: variable definition table

Variable type	Variable code	Variable name	Variable definition
Explained variable	EDI	Environmental information disclosure index	The level of environmental information disclosure
Explanatory variable	SIZE	Company size	Natural logarithm of total assets of the company
	ROE	Return on net assets	On behalf of the profitability of listed companies
	LEV	Financial leverage	On behalf of the company's financial leverage
	H	Ownership concentration	the top five shareholders' sharing ratio
	GA	National share ratio	The proportion of the shares held by the shareholders on behalf of the state investment institutions

3.3 Model design

In the research, descriptive statistics, correlation analysis and multiple regression analysis are used to study the main factors affecting the level of information disclosure of listed companies in China. According to the hypothesis, the following research model is established:

$$EDI=\beta_0+\beta_1 SIZE+\beta_2 ROE+\beta_3 LEV+\beta_4 H+\beta_5 GA+\varepsilon$$

β_0 is constant, $\beta_1 \sim \beta_5$ is the regression coefficient, it means how the explained variables change with the change of explanatory, ε is as a random disturbance term.

4 Empirical Analyses

4.1 Descriptive statistic

Figure 2 describes the descriptive statistical results of the full sample environmental information disclosure index. The whole mean of the sample is 2.16 (full score is 4).

Figure 2: descriptive results of environmental information disclosure

Type	N	Minimum	Maximum	Mean	Standard deviation
Descriptive disclosure	75	0	1	0.83	0.724
Monetary disclosure	75	0	2	0.80	0.885
Independent social responsibility report	75	0	1	0.53	0.502
Environmental information disclosure index	75	0	4	2.16	1.386
Effective　N　（List status）	75				

From the above table, we can see that the maximum value of descriptive disclosure is 1 and the mean value is about 0.83, which shows that the majority of companies have made simple disclosure of environmental information in the selected samples; The maximum value of the currency disclosure is 2, but the mean value is 0.80, which indicates that only a small number of companies in the selected samples have made monetary disclosure; The maximum value of the independent social responsibility report is 1, the mean value is 0.53, which shows that in the selected samples, there are over half of the companies have disclosed independent social responsibility report.

4.2 Correlation analyses

Figure 3: correlation test

		EDI	SIZE	ROE	LEV	H	GA
EDI	Pearson relevance	1	.519**	.278*	.453**	.460**	.145
	Significant (bilateral)		.000	.016	.000	.000	.213
	N	75	75	75	75	75	75
SIZE	Pearson relevance	.519**	1	.108	.388**	.628**	.116
	Significant (bilateral)	.000		.355	.001	.000	.322
	N	75	75	75	75	75	75
ROE	Pearson relevance	.278*	.108	1	-.193	-.014	.121
	Significant (bilateral)	.016	.355		.097	.907	.301
	N	75	75	75	75	75	75
LEV	Pearson relevance	.453**	.388**	-.193	1	.280*	-.041
	Significant (bilateral)	.000	.001	.097		.015	.729
	N	75	75	75	75	75	75

Figure 3, cont

H	Pearson relevance	.460**	.628**	-.014	.280*	1	-.267*
	Significant (bilateral)	.000	.000	.907	.015		.021
	N	75	75	75	75	75	75
GA	Pearson relevance	.145	.116	.121	-.041	-.267*	1
	Significant (bilateral)	.213	.322	.301	.729	.021	
	N	75	75	75	75	75	75

**. Significant correlation at 0.01 level (bilateral)
*. Significant correlation at 0.05 level (bilateral)

According to figure 3, the results of correlation analysis explain there is a significant positive correlation (in the 0.01 or 0.05 level) between variable environmental information disclosure index (EDI) and the size of the company (SIZE), profitability (ROE), financial leverage (LEV), ownership concentration (H), in addition to the proportion of state shares (GA).

4.3 Regression analyses

Figure 4: regression analysis and significance test

Model	Non standardized coefficient		Standardized coefficient	t	Sig.
	B	Standard error	Beta		
(Constant)	-2.232	1.997		-1.118	.267
SIZE	.142	.092	.184	1.541	.028
ROE	2.487	.675	.334	3.682	.000
LEV	2.303	.594	.378	3.881	.000
H	1.909	.882	.243	2.165	.034

a. Dependent variable: environmental information disclosure index

We can see that different independent variables affect the level of environmental information disclosure from the beta value of each variable. The standard coefficient beta values of return on net assets and asset liability ratio are 0.334, 0.378, It shows that the profitability(ROE), financial leverage (LEV) of listed companies in China's mining industries have relatively significant impact on the level of environmental information disclosure.

5 Conclusions

The above research results support hypothesis 1, hypothesis 2, hypothesis 3, and hypothesis 4. So this empirical analysis comes to the conclusions as follows: the larger companies tend to disclose more environmental information. Companies with

strong profitability have a significant positive impact on environmental information disclosure. The companies have more funds to fulfill the environmental responsibility so that they have the initiatives to disclosure full environmental information. There is positive correlation between the debt and the environmental information disclosure of the listed companies. The listed companies are willing to disclosure more environmental information in order to establish good image and long-term development of the companies.

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