ATLANTIS PRESS

Advances in Economics, Business and Management Research, volume 182

Proceedings of the 2021 International Conference on Economic Development and Business Culture (ICEDBC 2021)

Research on the Relationship Between Social Responsibility and Systemic Risk
——Take China's Listed Companies as an Example

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ABSTRACT
This paper selects the listed companies with ESG rating from 2017 to 2019, and analyzes the impact of social responsibility and information disclosure on system risk, as well as what kind of companies tend to actively disclose social responsibility. The results show that active disclosure is the key factor to effectively reduce system risk. Those enterprises with sound financial structure, larger scale and younger age are more inclined to actively disclose social responsibility reports. Finally, this paper puts forward policy suggestions from three aspects of enterprises, regulators and investors.

Keywords*：ESG, GRI, system risk.*

1. INTRODUCTION

COVID-19 brought great impact to China's economic development. In order to actively respond to the national epidemic prevention and control measures, all provinces delayed the resumption of work and production, which caused the increase of systemic risk. Therefore, for enterprises, how to deal with system risk has become a major issue of enterprise risk management. Some scholars believe that the implementation of CSR and corporate profits are mutually hindered, but in fact, the operation of these companies does not seem to be affected. In recent years, some scholars have found that the disclosure of CSR have a positive impact on the interaction between enterprises and stakeholders. The number of listed companies that disclose social responsibility reports has increased year by year, and the content of the reports is more and more abundant, reflecting that listed companies pay more and more attention to the disclosure of social responsibility reports. So will CSR and information disclosure reduce system risk? What kind of enterprises will be inclined to disclose their reports voluntarily? Is there an obvious industry division? This will be the focus of this paper.

CSR emphasizes that enterprises should not only create profits, but also bear the responsibility to all stakeholders. ESG, namely environment, society and corporate governance, is an important index to evaluate the implementation of CSR. At present, the globally recognized disclosure framework is compiled with reference to the third generation of social responsibility reporting framework (G3) released by the global reporting initiative. Many studies focus on whether social responsibility affects corporate performance and corporate value, or whether it is related to corporate governance characteristics. Li (2014) analyzed the impact of CSR on the stability of corporate performance from the perspective of risk, and believed that the performance of social responsibility can reduce business risk and stock system risk [1]. Shen (2006) tested that companies with larger scale and better long-term profitability tend to disclose CSR information [2]. Bird (2007) found that CSR performance is significantly positively correlated with stock excess return [3]. So what is the relationship between the fulfillment of CSR and system risk? Yao (2020) studies the influence of compulsory and voluntary disclosure of social responsibility on financial information transparency, and believes that the promotion effect of voluntary disclosure of CSR on financial information transparency is more significant than that of compulsory disclosure [4]. Li (2020) believes that compared with the enterprises that disclose social responsibility information according to regulations, the degree of media attention and the size of enterprises themselves are more significant for the enterprises that voluntarily disclose social responsibility information [5]. Based on this, this paper mainly from

CSR, ESG on the impact of systemic risk and what kind of companies tend to disclose GRI these two aspects, to provide another way of thinking for social responsibility.

2. RESEARCH METHOD

This study takes the listed companies with ESG rating by China Economic and social investment alliance from 2017 to 2019, all the sample data in this paper are taken from the databases of wind and CSMAR. After all sample data are got from wind and CSMAR databases, the incomplete data are deleted first, and then extreme values are processed. Finally, 230 samples are obtained. This paper uses an empirical analysis on the impact of CSR performance and social responsibility report disclosure behavior on system risk by using the least square regression method, and makes an empirical analysis on what characteristics of enterprises tend to actively disclose social responsibility reports by using the logical regression method. The regression design is as follows:

$\mathrm{BETA} = \alpha0 + \alpha1\mathrm{ESG} + \alpha2\mathrm{GRI} + \alpha3\mathrm{SCALE} + \alpha4\mathrm{LIAB} + \alpha5\mathrm{GROWTH} + \alpha6\mathrm{AGE} + \alpha7\mathrm{STATE} + \alpha8\mathrm{IND} + \varepsilon0$…(1)

$\mathrm{GRI} = \alpha0 + \alpha1\mathrm{LIAB} + \alpha2\mathrm{GROWTH} + \alpha3\mathrm{SCALE} + \alpha4\mathrm{AGE} + \alpha5\mathrm{STATE} + \alpha6\mathrm{IND} + \varepsilon0$……………………...…(2)

Variable description:

Beta: it is used to measure the volatility of a security or portfolio relative to the overall market.

ESG: the ESG ratings of samples company.

Gri: wheather the company disclosure the social responsibility report according to GRI guideline.

Scale: the scale of enterprise, taking taking the natural logarithm of the total assets.

Liab: Total liabilities / total assets.

Growth: the growth rate of income.

Age: the number of years since the establishment of an enterprise

State: This is a dummy variable. If the enterprise is state-owned, set "1", otherwise is "0".

Ind: This is a dummy variable. If the enterprise is electronic industry, set "1", otherwise is "0".

3. RESULTS

This section is the empirical result. Firstly, the descriptive statistics of all sample data are listed as follows:

Table 1 descriptive statistics (sample size = 230)

	minimum value	Maximum	average value	standard deviation
ESG	1.0000	25.0000	19.3696	4.3492
BETA	0.3577	1.7951	1.0858	0.3210
GRI	0.0000	1.0000	0.5130	0.5009
SCALE	13.3322	21.6347	16.2681	1.7243
LIAB	0.0922	0.9345	0.5923	0.2077
GROWTH	-0.2248	1.1924	0.1811	0.2259
AGE	7.5178	36.0219	21.2332	5.9160
STATE	0.0000	1.0000	0.2739	0.4469
IND	0.0000	1.0000	0.1565	0.3641

Note：the variable definition refers to the section "Research Method".

The next is the empirical results of least square method, which are listed in Table 2 and table 3.

Table 2 empirical results of regression (1) (sample size = 230)

	T value	P value	Collinearity
Intercept	.294	0.000***	
ESG	0.232	0.817	1.145

GRI	-3.599	0.000***	1.147
SCALE	-4.319	0.000***	2.623
LIAB	4.383	0.000***	2.553
GROWTH	4.339	0.000***	1.097
AGE	-0.483	0.630	1.081
STATE	2.475	0.014**	1.052
IND	4.470	0.000***	1.159
Adj-R2	0.302		
F value	13.402	Significance***	

Note 1: the variable definition refers to the section "Research Method".

Note 2: P < = 0.01 is ***, 0.01 < p < = 0.05 is **, 0.05 < p < = 0.1 is *.

It can be seen from table 2 that there is no significant correlation between ESG performance and systemic risk, but there is a negative correlation between GRI and systemic risk. Therefore, the active disclosure of social responsibility report can effectively reduce the system risk, which is consistent with the research conclusion of Zhao (2018) [6].

Table 3 empirical results of regression equation (2) (sample size = 230)

	coefficient	P value
Intercept	-5.918	0.001***
LIAB	-1.747	0.093*
GROWTH	0.662	0.293
SCALE	0.479	0.000***
AGE	-0.047	0.063*
STATE	0.221	0.485
IND	0.193	0.634
R2	0.110	

Note 1: Note：the variable definition refers to the section "Research Method".

Note 2: P < = 0.01 is * *, 0.01 < p < = 0.05 is * *, 0.05 < p < = 0.1 is *.

From table 3, it can be concluded that the lower the debt ratio, the larger the size of the company and the younger the company, the more inclined it is to actively disclose the report.

4. CONCLUSION

ESG has no significant correlation with systemic risk, but GRI has a negative correlation with systemic risk. Active disclosure is the key factor to effectively reduce systemic risk. Those enterprises with sound financial structure, larger scale and younger age are more inclined to actively disclose social responsibility reports.

Enterprise level: we should actively fulfill social responsibility and disclose social responsibility report as much as possible, so as to effectively reduce system risk.

Regulatory level: from the perspective of the stable development of national economy, regulatory authorities should consciously improve the social responsibility rating system, strengthen the formulation and implementation of laws and regulations, in order to promote the development process of social responsibility disclosure.

Investor level: sound financial structure and enterprise scale are mostly good factors for investors. Only young enterprises are worthy of attention. Such enterprises also tend to disclose reports, which can be in the development period, and the development is still uncertain. Therefore, investment needs to be carefully evaluated.

ACKNOWLEDGMENTS

This thesis is completed under the guidance of Xiao Zhiyi. From the topic selection of the paper, the solution of the difficulties to the layout of the article, all of them are devoted to the efforts of the tutor. On the completion of this thesis, I would like to express my high respect and heartfelt thanks to Mr. Xiao!

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