ISSN: 2688-9323

How Financing Constraints Affect ESG Ratings

Ruxiang Kou

Department of Accounting, Anhui University of Finance and Economics, Bengbu, 233000, China

*Corresponding author: 2766825045@qq.com

Abstract

Based on the data of a-share listed companies from 2011 to 2020, this paper makes a regression analysis to study the effect of financing constraints on ESG score and its path of action. The results show that there is a significant positive correlation between the level of financing constraint and the ESG score, and the total score of corporate social responsibility plays an intermediary role between the two. That is, when enterprises encounter financing constraints, they tend to take measures to improve their social responsibility performance to convey a good message to the outside world, so as to ease the level of financing constraints, at the same time promote the performance of enterprise ESG score.

Keywords

Financing Constraints; ESG Score; Social Responsibility Score.

1. Introduction

After the 19th party congress, the 20th party congress once again emphasized the importance of high-quality development. Enterprises should not only focus on the development of economic profits, but also pay attention to social responsibility, environmental responsibility and optimize their own governance structure. In this context, ESG scoring system began to enter people's vision. ESG (environment, social and governance) is an important international standard to measure the level of green and sustainable development of enterprises, more and more researches and experiments have found and confirmed its utility to enterprises. However, most researchers are concerned about the economic consequences of ESG, but there is little research on the factors affecting ESG, and there is no effective regulatory means for ESG disclosure.

However, as an important standard to measure the level of green and sustainable development of enterprises, ESG score can not be ignored, so enterprises should follow the trend of the times and pay attention to their ESG score, so it is very important to study the factors that affect ESG score. Financing constraint refers to the restriction that enterprises encounter when they seek external financing. If the cost of financing is too high, enterprises will face financing difficulties and be prone to financial crisis. From this point of view, this paper explores its impact on the ESG score of enterprises and the path of action.

The contributions of this paper are as follows: 1. It perfects the relevant theoretical research of ESG, and makes up the deficiency of the research on the influencing factors of ESG to some extent, most of the existing literature focuses on the economic consequences of ESG rating system for enterprises, but neglects what factors can promote the ESG rating performance of enterprises, it also explores the path and mechanism of its influence and expands the research in this field. At the same time, it also provides some reference value for enterprises to improve their ESG scores. 2. Expand the research on the economic consequences of financing constraints.

2. Theoretical Analysis and Research Hypotheses

Previous studies have demonstrated the various effects of financing constraints on enterprises. Liu Shengqiang and others think that financing constraints lead to insufficient R&D Investment; Sun Lingyan and Li Ronglin found that external financing constraints are an important factor restricting export participation; Ceng and Tong studied the impact of financing constraints on diversification and the relationship between diversification and performance, using a sample of China CSI 300 Index Index Companies from 2009 to 2012, found that financing constraints weaken enterprise diversification. To sum up, when the enterprise falls into the financing constraint predicament, it not only increases the financing cost and reduces the enterprise performance, but also has many adverse effects on the enterprise. Therefore, enterprise managers need to find ways to get rid of financing constraints, Qiao Pengcheng and Zhang Yansong Article a-share listed companies from 2010 to 2020 as the research object, this paper analyzes the relationship between corporate social responsibility and financing constraints, and finds that corporate social responsibility can effectively ease financing constraints. Therefore, when enterprises are faced with financing constraints, they can relieve this disadvantage by fulfilling social responsibility, and this behavior will inevitably have an impact on the ESG rating. As ESG is a new green economy development concept related to environment, social responsibility and corporate governance, when enterprises in the activities of enhancing social responsibility, naturally, it can improve the ESG rating performance of enterprises to some extent. From this, we conclude that:

H1: financing constraint dilemma can improve ESG scores of enterprises to some extent.

H2: financing constraint can improve ESG scores of enterprises by fulfilling social responsibility.

3. Research Design

3.1. Sample Selection and Data Sources

In this paper, the data of a-share listed companies from 2011 to 2020 are selected as the research sample, and the companies that have been listed for less than a year, have been delisted or suspended from the market are excluded, social responsibility score data from He Xun network, other data from the CSMAR database. This paper deals with the data as follows: excluding the sample data of ST and ST * companies, excluding the sample data of listed companies in the financial industry, and excluding the sample data with missing values of related variables, to prevent extreme values from influencing the empirical results, data were Winsorize-tailed at 1% and 99% levels, resulting in 9,897 annual corporate observations.

3.2. Model Construction and Variable Implication.

In order to test the correlation between financing constraints and enterprise ESG score, this paper constructs the following model:

$$\mathrm{ESG}_{it} = \beta_0 + \beta_1\mathrm{FC}_{it} + \beta_2\mathrm{Size}_{it} + \beta_3\mathrm{Lev}_{it} + \beta_4\mathrm{ROA}_{it} + \beta_5\mathrm{ROE}_{it} + \beta_6\mathrm{ATO}_{it} + \beta_7\mathrm{Cashflow}_{it} + \beta_8\mathrm{Indep}_{it} + \beta_9\mathrm{Top1}_{it} + \beta_{10}\mathrm{SOE}_{it} + \beta_{11}\mathrm{ListAge}_{it} + \beta_{12}\mathrm{Mshare}_{it} + \beta_{13}\mathrm{Occupy}_{it} + \varepsilon_{it} \tag{1}$$

$$\mathrm{total}_{it} = \beta_0 + \beta_1\mathrm{FC}_{it} + \beta_2\mathrm{Size}_{it} + \beta_3\mathrm{Lev}_{it} + \beta_4\mathrm{ROA}_{it} + \beta_5\mathrm{ROE}_{it} + \beta_6\mathrm{ATO}_{it} + \beta_7\mathrm{Cashflow}_{it} + \beta_8\mathrm{Indep}_{it} + \beta_9\mathrm{Top1}_{it} + \beta_{10}\mathrm{SOE}_{it} + \beta_{11}\mathrm{ListAge}_{it} + \beta_{12}\mathrm{Mshare}_{it} + \beta_{13}\mathrm{Occupy}_{it} + \varepsilon_{it} \tag{2}$$

$$\mathrm{environment}_{it} = \beta_0 + \beta_1\mathrm{FC}_{it} + \beta_2\mathrm{Size}_{it} + \beta_3\mathrm{Lev}_{it} + \beta_4\mathrm{ROA}_{it} + \beta_5\mathrm{ROE}_{it} + \beta_6\mathrm{ATO}_{it} + \beta_7\mathrm{Cashflow}_{it} + \beta_8\mathrm{Indep}_{it} + \beta_9\mathrm{Top1}_{it} + \beta_{10}\mathrm{SOE}_{it} + \beta_{11}\mathrm{ListAge}_{it} + \beta_{12}\mathrm{Mshare}_{it} + \beta_{13}\mathrm{Occupy}_{it} + \varepsilon_{it} \tag{3}$$

$$society_{it} = \beta_0 + \beta_1 FC_{it} + \beta_2 Size_{it} + \beta_3 Lev_{it} + \beta_4 ROA_{it} + \beta_5 ROE_{it} + \beta_6 ATO_{it} + \beta_7 Cashflow_{it} + \beta_8 Indep_{it} + \beta_9 Top1_{it} + \beta_{10} SOE_{it} + \beta_{11} ListAge_{it} + \beta_{12} Mshare_{it} + \beta_{13} Occupy_{it} + \varepsilon_{it} \quad (4)$$

$$esg_{it} = \beta_0 + \beta_1 FC_{it} + \beta_2 total_{it} + \beta_3 Size_{it} + \beta_4 Lev_{it} + \beta_5 ROA_{it} + \beta_6 ROE_{it} + \beta_7 ATO_{it} + \beta_8 Cashflow_{it} + \beta_9 Indep_{it} + \beta_{10} Top1_{it} + \beta_{11} SOE_{it} + \beta_{12} ListAge_{it} + \beta_{13} Mshare_{it} + \beta_{14} Occupy_{it} + \varepsilon_{it} \quad (5)$$

ESG is the interpreted variable, FC is the interpreted variable, indicating that the higher the level of financial constraint FC Index is, the more serious the financial constraint is. Total is the overall social responsibility score, while environment and society are the sub-scores of the overall social responsibility score, representing the environmental responsibility score and the social responsibility score. Through the study of the relevant literature, this paper adopted the relevant factors that may affect the enterprise ESG score as the control variable, the specific variable definition is shown in Table 1:

Table 1. Variable Definition

variable type	variable name	variable symbol	variable meaning
The dependent variable	ESG score	ESG	Bloomberg's total score for environmental, social, and governance
Explanatory variables	FC index	FC	reflect the degree of corporate financing constraints
The intermediary variable	total social responsibility score	total	reflects the overall performance of corporate social responsibility
	Environmental responsibility rating	environment	reflects the performance status of corporate environmental responsibility
	Social responsibility rating	society	reflecting the fulfillment status of corporate social responsibility
Control variable	company size	Size	Natural logarithm of total assets
	Asset liability ratio	Lev	total assets/total liabilities
	Net profit margin of total assets	ROA	net profit/total assets
	Return on equity	ROE	net profit/average net assets
	Total asset turnover rate	ATO	turnover/total assets
	Cash flow ratio	Cashfiow	net cash flow/ending Current liability
	Independent director ratio	Indep	number of independent directors/total number of directors
	The shareholding ratio of the largest shareholder	Top1	the number of shares/total number of shares held by the largest shareholder
	Listing Age	ListAge	Age of listing of enterprises
	Management shareholding ratio	Mshare	number of shares held by management/total number of share capital
	Occupation of major shareholder funds	Occupy	proportion of major shareholder funds

ISSN: 2688-9323

4. Empirical Analysis

4.1. Descriptive Statistics.

Through the descriptive statistics in Table 2, we can see that the maximum value of enterprise ESG score is 68.9166, but the average value is only 27.22, the ESG score of the enterprise as a whole is not too high. The average financing constraint level is 0.29, which indicates that the financing constraint is still an important issue that enterprises can not ignore. The maximum score of corporate social responsibility is 90.87, the minimum is -16.72, the mean is 31.03, and the standard deviation is as high as 19.696, indicating that there is a big difference in corporate social responsibility scores. The other control variables were all within the normal range, and there was no significant difference from other related studies.

Table 2. Descriptive Statistics

VarName	Obs	Mean	SD	Min	Median	Max
ESG	9897	27.22	8.495	6.1983	26.7478	68.9166
FC	9897	0.29	0.239	.000046	.23017	.971485
total	9897	31.03	19.696	-16.72	25.51	90.87
Size	9897	23.16	1.289	19.57009	23.05346	26.45228
Lev	9897	0.48	0.200	.0318682	.4910921	.9267883
ROA	9897	0.05	0.063	-.382078	.040534	.255226
ROE	9892	0.09	0.123	-.961592	.0882715	.406002
ATO	9897	0.67	0.466	.054562	.562591	2.891314
Cashflow	9897	0.06	0.069	-.1994403	.0554612	.2558774
Indep	9897	0.38	0.055	.2857143	.3636364	.6
Top1	9897	0.37	0.161	.080871	.361775	.757786
SOE	9897	0.51	0.500	0	1	1
ListAge	9897	2.47	0.655	.6931472	2.639057	3.367296
Mshare	9493	0.07	0.152	0	.0002864	.7062682
Occupy	9895	0.02	0.024	.0001021	.0077956	.2020229

4.2. Regression Results

The results of regression analysis are shown in table 3, in which column (1) shows the regression results of Model 1, that is, the relationship between enterprise ESG score and financing constraint level (FC index) , with a coefficient of 3.352, the sign is positive, which is significant at the level of 0.01, indicating that the higher the level of financing constraint, the higher the ESG score of enterprises, it shows that the financing constraint dilemma can improve the ESG score of enterprises to a certain extent. Column (2) shows the regression result of Model 2, the coefficient is 3.427, the coefficient is positive, it is significant at the level of 0.01, indicating that the higher the level of financing constraint, the better the total score of corporate social responsibility. Column (3) and (4) show the impact of the level of financial constraint (FC Index) on the overall score of social responsibility. It is not difficult to find that the level of financial constraint has a significant positive effect on the corporate environmental responsibility score, however, the promotion effect on CSR is not significant, which shows that when enterprises are in financial constraints, they are more likely to choose to bear relatively low costs, and the media pay relatively high attention to environmental responsibility, and then help enterprises out of financing constraints.

ISSN: 2688-9323

Table 3. Regression Results

	(1)	(2)	(3)	(4)	(5)
	esg	total	environment	society	esg
fc	3.352***	3.427***	1.211**	0.455	3.168***
	(0.511)	(1.325)	(0.479)	(0.339)	(0.506)
total	-	-	-	-	0.054***
	-	-	-	-	(0.004)
Size	2.936***	2.755***	0.560***	0.333***	2.788***
	(0.092)	(0.238)	(0.086)	(0.061)	(0.092)
Lev	-2.439***	-9.174***	-0.688	-1.489***	-1.947***
	(0.495)	(1.283)	(0.464)	(0.328)	(0.491)
ROA	-5.403**	22.077***	-6.396**	-7.674***	-6.587**
	(2.664)	(6.914)	(2.498)	(1.769)	(2.640)
ROE	1.772	34.929***	2.167*	11.444***	-0.102
	(1.194)	(3.099)	(1.119)	(0.793)	(1.190)
ATO	1.140***	0.282	0.197	0.154	1.125***
	(0.155)	(0.402)	(0.145)	(0.103)	(0.153)
Cashflow	4.834***	4.915*	0.996	0.247	4.570***
	(1.027)	(2.665)	(0.963)	(0.682)	(1.017)
Indep	2.975***	2.493	1.307	1.121	2.841***
	(1.096)	(2.843)	(1.027)	(0.727)	(1.085)
Top1	-0.999**	-5.501***	-2.224***	-0.509*	-0.704*
	(0.415)	(1.076)	(0.389)	(0.275)	(0.411)
SOE	0.515***	2.334***	1.069***	-0.028	0.389***
	(0.147)	(0.382)	(0.138)	(0.098)	(0.146)
ListAge	-0.262**	0.310	0.156	0.318***	-0.279**
	(0.116)	(0.301)	(0.109)	(0.077)	(0.115)
Mshare	-0.550	-0.350	0.910**	-0.788**	-0.531
	(0.492)	(1.277)	(0.461)	(0.327)	(0.487)
Occupy	-11.199***	-8.820	-0.364	2.563	-10.726***
	(2.688)	(6.975)	(2.520)	(1.784)	(2.662)
_cons	-47.885***	-23.417***	-4.826**	-4.956***	-46.629***
	(2.302)	(5.974)	(2.158)	(1.528)	(2.282)
N	9487.000	9487.000	9487.000	9487.000	9487.000
r2	0.532	0.431	0.344	0.343	0.541
r2_a	0.530	0.428	0.341	0.340	0.539

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

In order to test the mediating effect of the total score of social responsibility between financing constraint and ESG score, this paper adopts the three-step method of Wen Zhonglin's test of mediating effect, and the results are shown in column (1)(2)(5), the coefficients are all significant at the level of 0.01, indicating that the total score of social responsibility plays a part of the intermediary role between financing constraints and ESG scores.

5. Conclusion

This article studies a total of 9897 samples of A-share listed companies and constructs a multiple regression model to empirically test the relationship between financing constraints

ISSN: 2688-9323

and ESG scores of enterprises. The results showed that: (1) financing constraints can significantly improve the ESG score of enterprises. (2) The total score of social responsibility plays a partial mediating role between financing constraints and ESG scores. When enterprises encounter financing constraints, they tend to take measures to improve their social responsibility performance to convey a good message to the outside world, creating a "halo effect", hoping to alleviate the level of financing constraints of the enterprise, and in this process, promote the performance of the enterprise's ESG rating.

References

[1] Wei Feng, Liu Xing. The impact of financing constraints and uncertainty on corporate investment behavior[J]. Economic Sciences, 2004(02): 35-43.

[2] Lu Taiping, Zhang Dongxu. Financing requirements, financing constraints and earnings management[J]. Accounting Research, 2014, No. 315(01): 35-41 + 94.

[3] Liu Shengqiang, Lin Zhijun, Sun Fangcheng, etc. The influence of financing constraint and agency cost on enterprise R&D Investment: Based on the empirical evidence of listed companies in our country [J]. Accounting Research, 2015, No.337(11) : 62-68 + 97.

[4] Sun Lingyan, Li Ronglin. Are Financing Constraints Restricting Chinese Enterprises' Export Participation?[J] Economics (Quarterly), 2012,11 (01): 231-252.

[5] Qiao Pengcheng, Zhang Yansong. Corporate Social Responsibility, annual report text tone and financing constraints [J] . Financial Newsletter, 2023, No. 916(08) : 29-33.

[6] Liu Xiaojing, Gong Chunlei, Yang Jie, et al. The Impact of Intelligent Manufacturing Development on Enterprise ESG Performance [J]. Finance and Accounting Monthly, 2023,44 (13): 65-72.

[7] Wang Xiaohong, Zhao Meilin, Zhang Shaopeng, etc. Enterprise strategic radicalization, digital transformation and ESG performance: The Moderating Effect of enterprise life cycle [J/OL]. Soft Science: 1-13[2023-07-08].

[8] Wang Haifang, Qin Yu. Executive team stability and ESG accountability[J]. Management modernization, 2023,43(03) : 145-153.

[9] Xue Long, Zhang Qianyu, Li Xuefeng. Enterprise ESG performance and Green Technology Innovation[J]. Financial Journal, 2023,44(08) : 135-142.

[10] [Guo Lingxiu, Lu Xi. ESG performance and financial restatements[J]. Financial Journal, 2023,44(08) : 77-84.

[11] Lai Yan, Liu Weiwei, Wang Linjing. The present situation, hot spot and prospect of ESG research in our country[J]. Financial Journal, 2023,44(14) : 80-85.

[12] Teng Lili, Su Hang, Deng Weibin. Analysis of the impact of mergers and acquisitions goodwill on corporate financing constraints [J]. Finance and Accounting Monthly, 2023,44 (09): 52-59.

[13] Qing Dulian. Analysis of Auditor Industry Expertise and Corporate Financing Constraints[J]. Financial and Accounting Communication, 2023, No.917 (09): 36-40.