22. CSR evaluation and environmental performance of the manufacturing industry

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Efforts of companies on corporate social responsibility (CSR) have become one of the important criteria for corporate evaluation, affecting corporate management. Different types of CSR evaluation are conducted, and CSR is considered as a strategically important task.

Using scores of a study on environmental management levels and data on companies included in socially responsible investment (SRI) funds, differences in environmental performance among companies were analyzed. First, environmental management levels were classified depending on whether each company is included in SRI funds, thereby grasping their environmental management scores and how many of them are included in SRI funds. The environmental performance of the companies was subsequently analyzed from the perspective of their scores and whether they are included in SRI funds. As a result, it was confirmed that companies that are included in SRI funds have higher environmental management scores and show better environmental performance than those not included.

Key Words : *Study on environmental management levels, CSR evaluation, and SRI funds*

1. Introduction

How companies take measures for CSR attracts attention of different media. CSR has become strategically important as CSR evaluation affects corporate management in recent years. CSR evaluation now plays the role of a benchmark of evaluations on the CSR activities of companies. This paper examines whether companies with high environmental management scores also show good environmental performance, referring to a study on environmental management levels and data on companies included in SRI funds.

2. Data used

The study on environmental management levels (started in 1997) conducts questionnaire surveys on main Japanese companies and publishes a large number of study results. The study evaluates the following five items: institutional arrangements for the promotion of environmental management, measures to prevent pollution and preserve biodiversity, resource circulation, measures on products, and measures against climate change. The study allocates scores to the five evaluation items to make them indices at the first stage, and calculates scores, aggregating the five indices at the second stage.

This paper uses data on a total of 495 companies (449 manufacturing companies and 46 construction companies) among the 778 companies that provided valid responses in the study conducted in 2011. Information on the business types and the status of listing is added to this data, referring to the Quarterly Corporate Report 2012 (Summer Issue). Moreover, given that whether to include companies in SRI funds is determined in consideration of their CSR evaluation, whether or not any given company is included in SRI funds is considered as another indicator for CSR evaluation. Referring to a list of publicly offered SRI trusts of the Japan Sustainable Investment Forum (JSIF), 19 SRI funds that invest in domestic stocks, evaluating corporate performance on the environment, CSR, employment and "Womanomics," were selected. Based on the investment reports published by these SRI funds at the end of the Japanese fiscal year 2011, the companies that are included in these SRI funds were identified.

3. Scores and the number of companies included in the SRI funds

Among the 495 companies examined in the study on environment management levels, 190 companies are included in the SRI funds (which include a total of 366 companies), whereas 275 companies are not included. The inclusion rate is approximately 40%, meaning less than a half of the companies is included.

With regard to the relationship between the scores and the inclusion status, the inclusion rate increases significantly among the companies with over 350 points, whereas the non-inclusion rate gradually increases among the companies with over 150 points. The included companies generally have higher scores. Over 80% of the companies with over 350 points are included, whereas 60% of the non-included companies fall within this range.

In terms of score differences, the maximum and minimum scores of the included companies are 496 and 214 respectively, whereas those of the non-included companies are 475 and 56 respectively. While the difference between the maximum scores is 20, which is rather small, the difference between the minimum scores is 158, with the larger figure being over 4 times greater than the smaller figure. Moreover, the difference between the maximum and minimum scores is greater among the non-included companies.

Accordingly, it was confirmed that 60% of the companies with over 350 points are included and that the inclusion rate grows hand in hand with scores. Furthermore, a company has to have at least 200 points to be included.

Table 1. Inclusion status in SRI funds by score

score	included	not included	total
over 50	–	4	4
over 100	–	9	9
over 150	–	28	28
over 200	2	32	34
over 250	15	35	50
over 300	11	50	61
over 350	54	68	122
over 400	72	40	112
over 450 up to 500	36	9	45
total	190	275	465

4. Differences in CSR evaluation

We then examine whether the scores and the inclusion status in the SRI funds create differences in the environmental performance of the companies. A t-test (two-sample test of the null hypothesis such that the variances of the two populations are equal, using Excel t-test) was conducted on the scores to analyze if the status of inclusion in the SRI funds makes statistically significant differences between the average scores of the companies. The hypothesis is that "there is no significant difference between the average scores of the two groups." If this hypothesis is statistically rejected, it follows that there is a significant difference between the groups.

This test confirmed the following two points:

1)Whether there is a difference between the average scores of the companies included in the SRI funds and those that are not included; and

2)A hypothesis that since the average environmental management level of the included companies is higher than that of the non-included ones, the included companies has a higher environmental management level than the non-included ones.

Table 2 shows the result of this test.

Table2. t-test: two-sample test of the null hypothesis such that the variances of the two populations are equal

	included	not included
average	402.0105263	312.1636364
variances	3346.581899	8427.210352
number of observances	190	275
pooled variances	6353.260508	
difference from the hypothesis mean	0	
degree of freedom	463	
t	11.9487201	
P(T<=t) one-sided	3.59895E-29	
t threshold one-sided	1.64815134	
P(T<=t) both sided	7.1979E-29	
t threshold both-sided	1.965100873	

1)According to the normal distribution curve, in case t is greater than 1.96, there is a difference between the average scores with the significance level of 5% (two-sided test).

2)In case t is greater than 1.64, there is a difference between the average scores with the significance level of 5% (one-sided test). The result of the test is 1.65>1.64; hence, the hypothesis that "there is no difference between the average scores" was rejected. The figure below graphically shows the results disaggregated by scores.

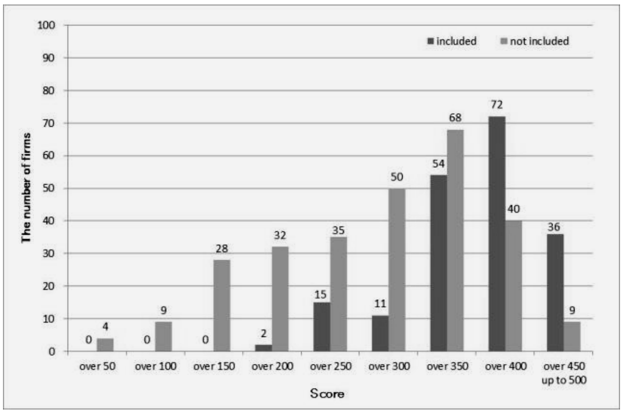

Figure. Number of companies by scores

This figure clearly shows that the included companies have higher scores and show better environmental performance than the non-included companies.

5. Conclusion

This paper examined differences in the environmental performance of companies, using environmental management scores and data on the companies included in SRI funds. The SRI funds do not make public the detail of their CSR evaluation because it is their own know-how. Therefore, this paper identified the included companies, referring to the investment reports of the respective funds. As a result, it was confirmed that the included companies have higher scores and show better environmental performance than the non-included companies.

Remaining issues include time-series comparison of companies and analysis of the cases in which companies with high environmental management scores are not included.

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