The Effects of ESG on Returns : Focusing on Chinese IT Companies

Jun-Chen Lin and Ji-Young Kwak

[1] Master, Department of Business Administrations, Semyung University, Korea
[2] Associate Professor, Department of Business Administrations, Semyung University, Korea

E-mail: [1]linjc970601@naver.com [2]jykwak@semyung.ac.kr*

Abstract

This paper selects 100 IT companies listed on the Shenzhen Stock Exchange from 2016 to 2020, and the public announcement in Hwajung collects ESG integrated ratings and grades for each sector and empirically verifies the relationship between ESG ratings and stock returns. Huazheng ESG level data and QIANZHAN database Using corporate financial data, a total of 500 samples were selected through correlation analysis and linear regression analysis with SPSS23 to analyze the effect of ESG on Return. As a result of the analysis, first, the impact on stock returns was found to be a significant positive (+) value for ESG integrated ratings and ratings by E (environment), S (social), and G (governance) sectors, confirming that ESG ratings have a positive mold of corporate stock returns.

Currently, the world's major economies have proposed sustainable development strategies and "carbon neutral" goals. Development strategies are very consistent with ESG concepts, and companies that agree and execute ESG concepts may have higher ratings than other companies in the same industry, resulting in certain evaluation premiums. In addition, capital market performance in recent years shows that companies with ESG concepts or "carbon neutrality" concepts are generally considered to have higher growth potential and stronger anti-risk capabilities in the market. For listed companies, they should focus on ESG investment, improve ESG performance, and actively disclose related information to investors. Improving ESG performance should deliver positive information to society, enhance corporate image, increase market confidence in the future development of listed companies, and positively improve corporate value to actively increase financial, financial, trading, and other aspects of negotiation.

Keywords: ESG, Environment, Social, Governance, Returns

1. INTRODUCTION

In 1992, the United Nations Environment Programme Financial Initiative (UNEP FI) proposed that financial

institutions could integrate environmental, social and corporate governance (ESG) factors in the decision-making process. Since then, ESG has gradually become the three most important dimensions for the international community to measure the sustainable development capacity of economic entities. In order to scientifically and accurately evaluate the environmental and social risks and corporate governance performance of enterprises and guide investors to make sustainable investment, international third-party evaluation institutions and index research institutions have studied and applied the ESG evaluation system.

However, the ultimate goal for most companies in China is to pursue profit maximization because investment in the ESG sector affects resource waste and profitability, making it difficult for companies to actively invest in the ESG sector. The reason is that Chinese companies are not fundamentally aware of the importance of ESG investment and do not increase operational efficiency through ideas such as improving green values and social public image as advanced countries. Thus, from an overall perspective, there is still a large gap between Chinese and foreign companies in ESG investment. Foreign scholars have found a positive correlation between ESG and financial performance through a number of empirical studies, but have yet to reach a unified conclusion, and some studies still believe that there is or does not have a negative correlation between the two. Currently, there are only a few studies on the relationship between ESG and financial performance in China, and most of them are studying specific factors such as environmental performance of ESG factors, corporate social responsibility, and the relationship between corporate governance and financial performance.

This paper mainly studies the impact of ESG investment of Chinese IT enterprises on stock returns. China's investment in ESG started late. The research of this paper provides reference experience for the development of other companies in China, making them realize the importance of ESG investment in the long-term value growth of enterprises, and promoting the development of relevant enterprises in China towards a green and sustainable direction.

2. Review of Previous Studies and Hypotheses

In the traditional investment evaluation model and framework, financial information is the main factor or even the only factor that investors consider in the evaluation of investment objects. However, in the ESG investment strategy, investors also analyze financial indicators based on the analysis of financial indicators. ESG factors of investment enterprises should be considered.

Although Ma Xili (2019)'s ESG investment in overseas financial markets has grown rapidly and has become one of the mainstream investment strategies in the western investor market, China's relevant theoretical research and practice are still at an early stage and the development is relatively slow and the scale is limited. But at present, most Chinese investment institutions have begun to investigate and explore ESG investment strategies, and China's ESG investment strategies are expected to show the following trends. First, the public's demand for ESG is increasing. Second, restrict the compulsory disclosure of ESG information. Third, more financial institutions join UNPRI. Fourth, the advantages of ESG-related products are increasingly prominent.

Yu Junqiu (2021) believed that the manufacturing industry in the Beijing-Tianjin-Hebei region played an important role in China's economic and social development, and the study of ESG expression was its representative. Therefore, an empirical analysis was conducted on 134 listed companies of Beijing-Tianjin-Hebei A-share manufacturing in 2015-2018. Using panel data, the research results show that the performance of corporate environmental violations has a negative impact on the improvement of corporate value, but it is not obvious. Enterprises bear more social responsibilities, and the improvement of governance structure can

improve corporate value.

Gao Hui (2021) believed through the Fitch ESG rating related score evaluation model that China's credit rating agencies must establish a mechanism that can continuously track the ESG factors of the evaluation object and clarify the credit rating relationship between the ESG factors and the evaluation object. Especially in the credit evaluation of private enterprises, compared with state-owned enterprises, private enterprises are more vulnerable to ESG-related factors, and their operation and credit status are more vulnerable to the impact of external environment and control structure.

Zhang Lin and Zhao Haitao (2019) selected the data of 417 A-share listed companies in China from 2015 to 2017 and analyzed the impact of ESG performance on enterprise value using the fixed effect model. ESG performance has a significant positive impact on enterprise value. Among non-state-owned enterprises, small enterprises and enterprises in non-polluting industries, ESG performance has a greater effect on the improvement of enterprise value.

In He Jing's paper, Wang Hejia (2021) used principal component analysis technology to screen research variables, put forward research assumptions, build research models, and finally selected relevant financial data and ESG data of listed companies in overseas technology industry from 2015 to 2017 for description. Analysis and correlation analysis are used respectively, and the model is verified by regression analysis. The research results show that in the long run, ESG has a significant positive correlation with financial performance. In the medium term, ESG has a positive correlation with financial performance. In the short term, the relationship between ESG and financial performance is not significant.

Hypothesis1: ESG rating will have a positive (+) impact on the yield.

Hypothesis 1-1: The environmental (E) department in the ESG rating will have a positive (+) impact on the return.

Hypothesis 1-2: The social (S) sector in the ESG rating will have a positive (+) impact on the return.

Hypothesis1-3: In the ESG rating, the governance structure (G) department will have a positive (+) impact on the return.

3. Sample Selection and Research Method

Based on the evaluation project developed by Huazheng, this paper selects the 5-year data of 100 IT enterprises in China, and uses the comprehensive ESG evaluation level and the rating level of E, S and G departments as independent variables to investigate their impact on stock returns and volatility. In order to analyze this point, the subordinate variables are set as the corporate return (SAR).

In models (1) ~ (4), in order to test the influence of ESG rating on stock returns, the dependent variables are set to scale-adjusted return (SAR), and the independent variables are set to ESG comprehensive rating and rating of various departments. Because the ESG rating is publicized based on the data of the previous year, the ESG rating variable is measured with t+1 as the time point, and the control variable is measured with t as the time point. In this research model, the ESG comprehensive rating 4 and the ratings of each department issued by CSEC each year are used as independent variables for the analysis of corporate yield and volatility. The ESG comprehensive level and each department level are divided into 9 levels, including AAA, AA, A, BBB, BB, B, CCC, CC and C, for analysis.ESG grade score: AAA=9, AA=8, A=7, BBB=6, BB=5, B=4, CCC=3,

CC=2, C=1.

[Model 1]

$$SAR_t = \alpha_0 + \beta_1 ESG_{t+1} + \beta_2 SIZE_t + \beta_3 LEV_t + \beta_4 ROA_t + \beta_5 CHROA_t + \beta_6 CFO_t + \beta_7 CHCFO_t + \beta_8 MTB_t + \beta_9 LOSS_t + \beta_{10} LARGR_t + \beta_{11} BIG4_t + \sum \beta YEAR\_DUM_t + \varepsilon_t$$

[Model 2]

$$SAR_t = \alpha_0 + \beta_1 E_{t+1} + \beta_2 SIZE_t + \beta_3 LEV_t + \beta_4 ROA_t + \beta_5 CHROA_t + \beta_6 CFO_t + \beta_7 CHCFO_t + \beta_8 MTB_t + \beta_9 LOSS_t + \beta_{10} LARGR_t + \beta_{11} BIG4_t + \sum \beta YEAR\_DUM_t + \varepsilon_t$$

[Model 3]

$$SAR_t = \alpha_0 + \beta_1 S_{t+1} + \beta_2 SIZE_t + \beta_3 LEV_t + \beta_4 ROA_t + \beta_5 CHROA_t + \beta_6 CFO_t + \beta_7 CHCFO_t + \beta_8 MTB_t + \beta_9 LOSS_t + \beta_{10} LARGR_t + \beta_{11} BIG4_t + \sum \beta YEAR\_DUM_t + \varepsilon_t$$

[Model 4]

$$SAR_t = \alpha_0 + \beta_1 G_{t+1} + \beta_2 SIZE_t + \beta_3 LEV_t + \beta_4 ROA_t + \beta_5 CHROA_t + \beta_6 CFO_t + \beta_7 CHCFO_t + \beta_8 MTB_t + \beta_9 LOSS_t + \beta_{10} LARGR_t + \beta_{11} BIG4_t + \sum \beta YEAR\_DUM_t + \varepsilon_t$$

In order to analyze the impact of the ESG evaluation results implemented in the HUAZHENG database on the stock yield and volatility, this paper sets the ESG rating issued by Huazheng from 2016 to 2020 as the substitute variable of non-financial performance. As the sample of this study, take IT enterprises listed on Shenzhen Stock Exchange from 2016 to 2020 as the object, and select enterprises that meet the following conditions as the sample.

This study selects the December Settlement Act of IT companies listed on Shenzhen Stock Exchange from 2016 to 2020 as the analysis object. The analyzed financial information is extracted from QIANZHAN database, and the analyzed ESG level is extracted from HUAZHENG database. The specific sampling process is shown in Table 5. Of the 2874 samples of settlement legal persons listed on the Shenzhen Stock Exchange in December, 500 samples were finally selected.

Table 1. Sample Selection

Sample selection procedure	Firm-quarters
December settlement legal person listed on Shenzhen Stock Exchange from 2016 to 2020	2874
(Less) Companies that can use financial information in QIANZHAN database	(2583)
(Less) Companies providing information in HUAZHENG database	(2361)
(Less) IT Companies	(749)
(Less) Except for capital nibbling companies	(249)
Final sample	500

The final samples used in the financial information analysis of this study are 100 compaines in 2016, 100 compaines in 2017, 100 compaines in 2018, 100 compaines in 2019 and 100 compaines in 2020, a total of 500.

Table 2. Annual Sample Size

Year	2016	2017	2018	2019	2020	Total
N	100	100	100	100	100	500

4. Research Results

Table 3. Technical statistics of variables

Variables	N	Mean	Median	STD	Min	Max
SAR	500	0.037	0.004	0.190	-0.509	3.077
ESG	500	6.272	6.000	1.354	2.000	9.000
E	500	4.586	4.000	1.564	2.000	8.000
S	500	6.540	7.000	1.156	2.000	9.000
G	500	6.834	7.000	1.940	1.000	9.000
SIZE	500	146.042	47.795	393.103	0.580	4,242.570
LEV	500	0.416	0.392	0.253	0.038	2.509
ROA	500	-0.010	0.031	0.222	-3.565	0.280
CHROA	500	0.118	-0.113	34.418	-130.286	736.000
CFO	500	0.067	0.071	0.410	-6.297	4.550
CHCFO	500	-0.450	-0.325	6.499	-77.034	41.279
MTB	500	5.502	3.760	6.635	0.550	65.040
LOSS	500	0.860	1.000	0.347	0.000	1.000
LARGE	500	0.259	0.232	0.121	0.019	0.579
BIG4	500	0.030	0.000	0.171	0.000	1.000

(Variable definition) SAR=return on scale adjustment; ESG score: ESG comprehensive score; E: Environmental department score; S: Fractionation of social sectors; G: Governance department score; SIZE=natural log value of total assets; LEV=total liabilities/total assets; ROA=current net profit/total assets; CHROA=the change of ROA in the current period and the next period; CFO=cash flow from operating activities/total assets; CHCFO=change of CFO in the current and next period; MTB=ratio of book value of net assets to market value; LOSS=1, or 0 if the enterprise has reported losses in the current period; LARGE=shareholding ratio of the largest shareholder; BIG4=1 or 0 if the audit is obtained from a large accounting entity.

The technical statistics of samples are given in Table 3. Among the independent variables, the average ESG score is 6.272, the E score is 4.586, the S score is 6.54, and the G score is 6.834. Among the ESG comprehensive grade score and the average score of each department, the G (dominant structure) grade has the highest average score. Among the subordinate variables in this study, the average value of SAR of stock

return is 0.037, and the average value of stock volatility VOL is - 001. Among other control variables, the mean value of SIZE is 146.042, the median is 47.795, and the standard deviation is 393.103. The mean value of LEV is 0.416, the median is 0.392, and the standard deviation is 0.253. The average value of ROA is - 001, the median is 0.031, and the standard deviation is 0.222. The mean value of CHROA is 0.118, the median is - 0.113, and the standard deviation is 34.418. The mean value of CFO is 0.067, the median is 0.071, and the standard deviation is 0.41. The mean value of CHCFO is -0.45, the median is -0.325, and the standard deviation is 6.499. The mean value of LOSS is 0.86, the median is 1, and the standard deviation is 0.347. The mean value of LARGE is 0.259, the median is 0.232, and the standard deviation is 0.121. The average value of BIG4 is 0.03, the median is 0, and the standard deviation is 0.171.

Table 4. Regression analysis between ESG rating and stock return

	Model1	Model2	Model3	Model4
intercept	-0.003	0.007	-0.014	-0.025
	(-0.292)	(0.735)	(-0.991）	(-2.629)***
ESG	0.008			
	(5.233)***			
E		0.008		
		(6.329)***		
S			0.009	
			(5.054)***	
G				0.011
				(10.366)**
SIZE	-3.699	6.818	1.438	2.218
	(-0001)	(0.106)	(0.219)	(0.037)
LEV	-0.047	-0.046	-0.045	-0.032
	(-5.318)**	(-5.225)**	(-5.108)**	(-3.822)**
ROA	-0.877	-0.868	-0.866	-0.891
	(-0.748)	(-0.769)	(-9.758)	(-0.814)
CHROA	2.356	5.479	-8.101	-1.956
	(-0.42)	(0.099)	(-0.144)	(-0.375)
CFO	0.004	0.03	0.002	0.003
	(0.648)**	(0.459)**	(0.355)***	(0.619)***
CHCFO	9.593	4.276	0	-2.122
	(0.32)	(0.114)	(0.472)	(-0076)
MTB	-0.001	-0.001	-0.001	-0.001
	(-2.81)***	(-2.916)	(-2.378)***	(-1.805)***
LOSS	-0.003	-0.002	-0.00	-0.006
	(-0.535)***	(-0.356)***	1(-0.141)***	(-1.11)***
LARGE	0(1.523)	0(2.438)	0(1.632)	0(-0.909)
	-0.016	-0.012	-0.012	-0.031
BIG4	(-1.115)**	(-0.848)**	(-0.838)**	(-2.341)**

ΣYEAR	Included	Included	Included	Included
adj.R²	0.951	0.952	0.951	0.958
F Value	860.89***	883.337***	857.83***	1001.743***

* P<.1, **P<.05, ***P<0.01

In order to analyze the impact of the ESG integration level and E (environment), S (society) and G (governance structure) department levels on the stock return, Table 4 gives the results of [model 1] - [model 4] regression analysis. The analysis results show that the predicted and enterprise ESG integrated ratings in Hypothesis 1 have a significant impact on the stock return. The regression coefficient of ESG rating is 0.008, with a significant result of 1%. The analysis results of the sub-assumptions in Hypothesis 1 show that the regression coefficient of E (Environment) department is 0.008, with a significant result of 1%. The regression coefficient of the (social) sector is 0.009, with a significant result of 1%. Finally, the regression coefficient of the G (governance) sector is 0.011, which has a significant impact of 1%.

These regression analysis results support the argument of this study on the importance of ESG level for better operation of enterprises.

5. Conclusion

ESG ideology has something in common with China's sustainable development strategy of 'innovation, coordination, green, open, and sharing', and the ESG evaluation system provides a sustainable development evaluation tool with utilization and helps Korea's sustainable development strategy in depth. For a long time, investors have been increasingly interested in corporate performance in green environmental protection and social responsibility, but there has been no clear ESG ideology. By 2006, the UN Principle of Responsible Investment (UNPRI) was published, which played a key role in the development of the field. In the same year, Goldman Sachs published a research report called ESG, clearly presenting the ESG concept by integrating the concepts of environment, society, and management into one relatively early on.

Since then, international organizations and investment organizations have continuously deepened ESG concepts and evolved full and systematic information disclosure standards and performance evaluation methods toward three aspects of ESG to become a complete ESG ideology system. Major investment companies in the field also gradually launched ESG's investment products.

This paper selects 100 IT companies listed on the Shenzhen Stock Exchange from 2016 to 2020 as the research object, and China Securities Corporation publicly publishes and collects ESG integrated ratings and department ratings to empirically test the relationship between ESG ratings and stock returns. The analysis results show that, first, the impact on the stock return is shown by the ESG comprehensive rating and the significantly positive (+) value of the ratings of E (environment), S (social) and G (governance structure) departments, which confirms that the ESG rating has a positive impact on the stock return of enterprises.

The governance structure of most listed enterprises in China is poor, and the gap between the governance structure of listed enterprises is also large. There is a negative correlation between corporate governance structure and stock Return. This shows that listed companies with high governance structure are likely to bring good returns to investors.

However, most of the listed enterprises in China have a low level of governance structure, abnormal operation and management, and the interests of most small and medium-sized enterprises cannot be protected. Therefore,

relevant departments should regularly evaluate the level of governance structure of listed enterprises in China and disclose the governance structure index of listed enterprises to the public. The reasons are as follows. First, relevant departments can use corporate governance structure assessment as a new regulatory tool to focus supervision on listed companies with low corporate governance structure index and improve regulatory efficiency. Most listed enterprises can make investment decisions by referring to the listed company governance structure index issued by the authoritative department, which helps enterprises effectively protect their legitimate rights and interests. Its own business achievements and the investment of listed companies' own investment promotion and investors can help actively improve the level of corporate governance structure, protect the rights and interests of most corporate investors, and promote the orderly operation of the stock market.

Acknowledgement

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