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ESG Investors and Firm Performance: Catering or Impacting

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Abstract:

As the scale of ESG investment grows, the way it affects firm performance remains unclear. This study explores the relationship between ESG investment and firm performance through empirical analysis, and finds that the relationship is complex, with both catering and impacting, and that it varies across countries, firms and dimensions. While some firms' ESG performance improves after investment, there are also firms that engage in catering behavior. Based on the findings of the study, the article proposes corresponding recommendations for firms and investors, including the formulation of long-term ESG strategies by firms, integration into their core strategies, focusing on the improvement of social performance; the reinforcement of ESG investment concepts by investors, in-depth analysis of ESG performance of firms, and the formulation of diversified investment strategies.

Keywords: ESG investment, firm performance, impact hypothesis, catering hypothesis, heterogeneity analysis

1. Introduction

In recent years, the impact of ESG investing has been on the rise. Current investment behavior takes environmental, social and governance factors into account in decision-making, not just traditional financial indicators. UNPRI (United Nations Principles for Responsible Investment) has nearly 4,000 signatories by 2021,and firms and financial institutions around the world are gradually improving their ESG performance.

As the scale of ESG investments grows significantly, firms are under pressure to optimize their ESG performance. However, it is unclear through what pathways ESG investments affect firm performance. Whether firms are optimizing superficial operating data to attract ESG investors (catering) or whether ESG investments are driving substantial improvements in firm performance (impacting) is a question that needs to be urgently investigated and explored. Research on this issue will provide reliable support for the optimization of firm ESG performance, which will be conducive to the improvement of firm business systems and ESG performance.

2. Literature Review

Huiying Chen, Yuqian Li, and Yanping Zhou analyze the mechanism of ESG performance on firm performance through the mediation effect model with innovation ability as the mediating variable, and find that good ESG performance significantly promotes the performance of listed manufacturing firms, in

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which innovation ability plays a partly intermediary role[1]; Wenbing Wang and Luo'an Wang explore the relationship between ESG performance, institutional investor shareholding and firm performance through the empirical research method, and conclude that there is a significant positive correlation between ESG performance and institutional investor shareholding and firm performance, and that institutional investor shareholding plays a moderating role between ESG performance and firm performance[2];-Li Zheng et al. study the data of A-share listed firms and ESG decoupling indexes from 2017-2021,and conclude that managers may choose to reduce the ESG information in order to cater to the ESG demands of stakeholders disclosure quality, resulting in the decoupling of firms' external ESG disclosure and internal ESG practices[3]; Guanqun Jian and Xiaohong Dong conduct a multi-case study on the ESG fulfillment efforts and economic consequences of three banks as a way to deeply analyze the reasons for the different economic outcomes of the case banks under the same ESG measures and their mechanisms, and find that symbolic catering to the regulatory policies or to gain the trust of the relevant stakeholder groups does not improve firm performance[4].

From scholars' researches on ESG investment and firm performance, it mainly focuses on how ESG performance affects firm performance individually, with insufficient exploration of its deeper mechanisms of action. In order to study through what transmission pathway ESG investors affect firm performance, it is necessary to study both firm catering to ESG investors and ESG investment driving firm performance.

Some scholars have argued that firms actively participate in ESG-related activities and improve their ESG performance and ratings with the aim of attracting capital injections from ESG investors, without necessarily integrating these optimization behaviors into their growth strategies. Such short-term changes, while bringing about a turnaround in investor sentiment, will not be internalized into operational performance and ESG performance. Another part of the argument is that ESG investors use their influence to push firms to adopt more sustainable and responsible business practices, prompting them to improve their business through various channels such as optimizing governance and improving eco-indicators.

3. Theoretical Analysis and Core Hypotheses

3.1 Impacting Hypothesis

ESG investment can effectively reduce the risks in business operations. Environmental risks are reflected in the acquisition and sustainable use of resources. With the accelerated depletion of global resources, the dependence of traditional firms on natural resources will continue to increase, and the resource supply chain risks they face are hard to avoid. However firms with good ESG performance are able to actively explore patterns of resource utilization and efficient recycling. In addition, consumers are increasingly inclined to choose environmentally friendly products and services. Environmentally friendly products and sustainable services can help ensure production continuity and develop new market shares. Firms that actively fulfill their social responsibility can gain support and recognition from society, and are more likely to leverage social resources to expand their business, reduce procurement costs, and improve their business performance. Therefore, it can be proposed:

Hypothesis 1: The ESG performance of firms improves under the investment of UNPRI signatories.

3.2 Catering Hypothesis

According to signaling theory, firms send various signals to the market in order to influence investors' decisions. ESG investors receive short-term information when initially screening for investment targets, and use heuristics to simplify the decision-making process, thus forming an initial perception that the firm's ESG performance is good, which increases the firm's chances of obtaining ESG investment. Catering behavior allows firms to increase their chances of securing ESG investments in the short term, driving up share or bond prices and providing some market value enhancement for the firm. In order to improve its ESG rating, a firm may invest in the construction or renovation of some environmental protection facilities in the short term, and when the firm's ESG rating is improved, it will be included in more ESG portfolios and strategies, thus appealing to ESG investors who rely on ratings and indices to make investment decisions. Therefore, it can be proposed:

Hypothesis 2a: ESG investors experience a significant improvement in ESG performance before investing but fail to sustain the increase after investing

Hypothesis 2b: UNPRI investors have lower funding costs and operational efficiency after investment

Hypothesis 2c: UNPRI investors prefer firms with better ESG performance

4. Research Methodology

4.1 Heterogeneity Analysis

There is heterogeneity among PRI signatories, and firms from different countries may have different ESG performance in the first year or so of investment by PRI signatories. For example, Chinese firms: tend to comply with various climate finance policies and fulfill the needs of all PRI signatories globally, and U.S. firms do not care if they get invested by PRI signatories. On the other hand, firms around the world may have different attitudes towards PRI signatories based in different countries. PRI signatories in certain countries behave differently around the first year of investment. For example, PRI signatories in the UK are concerned about the ESG performance of the holding firm, while PRI signatories in the US are mainly concerned about the risks and returns of the firm.

4.2 Research Design

To ensure the comprehensiveness of the sample, the study covers the business data and ESG performance of firms in 19 countries with good ESG performance, and empirically analyzes them using the quantitative method of statistical modeling. The study constructs regression models for different countries to determine the relationship between variables. The model takes into account the effects of different periods before and after the investment, and captures the changes in firm ESG performance, financing costs, and operational efficiency by setting multiple variables, while controlling for other factors that may affect the results, such as firm size and industry. In this study, data cleaning is carried out according to the following criteria: (1) countries with incomplete data in the UNPRI database are excluded; (2) countries with serious social conflicts are excluded (3) the data are shrink-tailed to reduce the impact of extreme values.

4.3 Variable Selection

4.3.1 Explanatory Variables

ESG score ($ESG_{i,t}$) represents the ESG score of firm i at time t, which is a comprehensive measure of the firm's ESG performance; economic impact ($EI_{i,t}$) represents the changes in the operation of firm i caused by ESG investment at time t.

4.3.2 Explanatory Variables

ESG investment occurs at time $prem_{i,t}(postm_{i,t})$, i.e., whether country m is invested by ESG in year 0+m or 0-m,if it is invested, the item will be 1,otherwise it will be 0; $current_{i,t}$ denotes the current data. The above explanatory variables together explain the values and trends of ESG score and EI.

4.3.3 Control Variables

Firm-level control variables ($CV_{i,t-1}$),i.e., a variety of firm characteristics, including firm size, leverage, profitability, Tobin's Q, cross-listing indicators, etc.; there are also country fixed effects (Φ_j),year fixed effects (ω_t),and industry fixed effects (γ_m). These control variables control for other factors of firms' own characteristics that may interfere with or confound the results in order to more accurately isolate the effects of explanatory variables.

Table 1 Description of variables

Label	Discription
$prem_{i,t}(postm_{i,t})$	Equals 1 if and only if firm i have been invested by PRl-signatories in year $t_{0-m}(t_{0+m})$
t_0	The first investment year by PRl-signatories
Φ_j	country-fixed-effect
ω_t	year-fixed-effect
γ_m	industry-fixed-effect

4.3.4 Model Setting

The following model was developed to test the hypotheses

$$ESG_{i,t}=\alpha+\beta_{-2}*pre2_{i,t}+\beta_{-2US}*pre2US_{i,t}+\beta_{-2UK}*pre2UK_{i,t}+\beta_{-2CHINA}*pre2CHINA_{i,t}+...+CV_{i,t-1} \quad (1)$$

$$EI_{i,t}=\mu_0+\mu_1*pre5_{i,t}+\mu_2*pre4_{i,t}+\mu_3*pre3_{i,t}+\mu_4*pre2_{i,t}+\mu_5*pre1_{i,t}+\mu_6*current_{i,t}+\mu_7*post1_{i,t}+\mu_8*post2_{i,t}+\mu_9*post3_{i,t}+\mu_{10}*post4_{i,t}+\mu_{11}*post5_{i,t}+\mu_{12}*post6_{i,t}+\mu_{13}*post7_{i,t}+\mu*C_{i,t}+\Phi_j+\omega_t+\Phi_j*\omega_t+\gamma_m+\varepsilon_{i,t} \quad (2)$$

5. Empirical Analysis

5.1 Descriptive Statistics of Variables

During the sample period, the maximum value of ESG Score is 86.996,the minimum value is 5.412,the median is

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42.582,and the standard deviation is 20.474,which shows a large volatility; the Social Pillar Score, Governance Pillar Score, and Environmental Pillars core's variance are all large, indicating that there are large differences in the differences in ESG performance across countries.

Table 2 Summary statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
ESG Score	59695	42.582	20.474	5.412	86.996
Social Pillar Score	59695	42.699	23.616	2.158	92.956
Governance Pillar Score	59695	49.071	22.407	4.685	92.277
Environmental Pillar Score	59695	33.359	29.01	0	92.571
io	59695	0.319	0.212	0	0.822
pri io	59695	0.035	0.048	0	0.19
size	59695	22.332	1.705	14.316	25.591
tang1	59695	21.071	111.309	0	1175.199
lev	59695	16.787	86.552	0	865.599
q	59695	18.468	90.159	0.145	931.974
pro	59695	5.729	36.715	-22.739	417.804
crosslist	59695	0.313	0.464	0	1
post	59695	0.991	0.093	0	1

5.2 Regression Results

Through the regression analysis of the model, the coefficient estimates of each variable and the corresponding statistical significance level are obtained. The ESG Score of firms in each country has a tendency to increase after investment, and there are some differences in the degree of change and trend of each dimension among firms in different countries, which provides a dynamic perspective for further exploring the impact of investment on the ESG performance of firms. The ESG Score of firms in some countries increases after investment, which to some extent supports Hypothesis 1 (Impact Hypothesis), that is, ESG investment directly and positively affects firm performance. The degree of impact is not uniform across all firms, while the degree of improvement and the trajectory of change in the ESG dimensions varies across firms. Firms in another subset of countries show catering, i.e., performance is enhanced before and after the ESG investment takes place, but there is no significant change several years after the investment. The results show that our study suggests that firms in the public operating sector have negative ESG performance, mainly due to conflicting operational objectives; large acquiring organizations care about ESG, while managers do not; and organizations seem to care less about the social performance of their firms compared to other dimensions.

Table 3 Summary statistics by country

Country	ESG Score	io	Pri_io	nfrim	post	Obs
ARGENTINA	36.7222	0349	0092	94	991	111
AUSTRALIA	38.2634	1923	0325	1944	9699	2987
AUSTRIA	48.4542	2559	0361	147	9864	294
BELGIUM	45.297	2418	0323	225	9906	426
BERMUDA	37.5752	4005	0349	131	9954	218
BRAZIL	49.8512	2293	0386	481	9952	828
CANADA	38.9915	3735	0396	3203	9968	2849
CAYMAN ISLANDS	34.2629	4005	0252	57	1	32

Country	ESG Score	io	Pri_io	nfrim	post	Obs
CHILE	39.9496	0839	0179	192	9868	302
CHINA	33.4423	0953	0126	4523	9546	3128
COLOMBIA	50.2331	061	0184	57	9714	140
CYPRUS	48.2305	1891	0209	55	96	25
CZECH REPUBLIC	44.7168	1816	0344	42	1	39
DENMARK	46.4204	3053	0362	259	9977	429
EGYPT	21.8687	0872	017	124	1	84
FINLAND	53.9634	3566	0616	208	1	426
FRANCE	57.3293	3337	0473	1175	9924	1445
GERMANY	52.5783	3386	0353	1182	9897	1460
GREECE	42.2092	1966	0324	306	9905	210

5.3 Heterogeneity Analysis

5.3.1 With Respect to PRI Signatory Country Side

In general, developed country signatories are more ESG-focused. however, they may perform worse in some specific ESG directions, and firms tend to cater to signatories prior to investing. For other countries, the impact of F&B is also present.

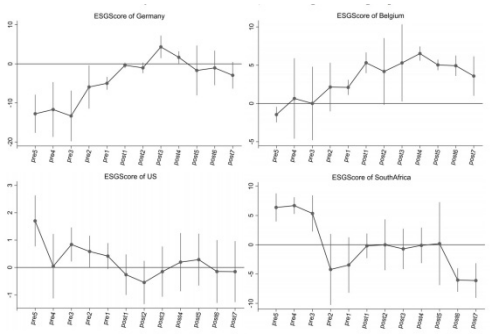

Figure 1 Heterogeneity test by PRI signatory countries

5.3.2 With Respect to PRI Category-wise

Both focus on ESG, with asset owners having a longer-term, more far-reaching impact on ESG. Service providers favor short-term rises in ESG indices because these indices have shorter durations. In contrast, investment managers do not care about firm ESG.

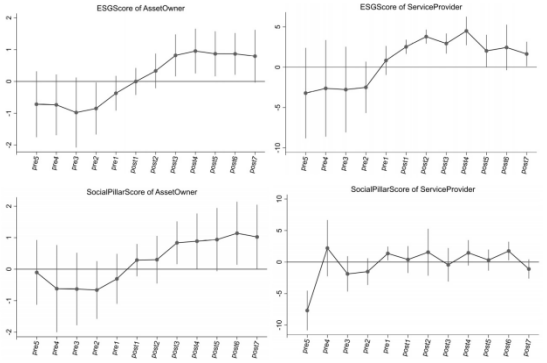

Figure 2 Heterogeneity test categorized by PRI signatory category

5.3.3 With Respect to Institutional Categories

PF managers, HF managers and PBs improve ESG performance after the first investment. Insurance firms tend to invest in poorer performing firms, but this adverse effect persists; in contrast, hedge fund managers invest in firms with better governance performance and maintain their advantage.

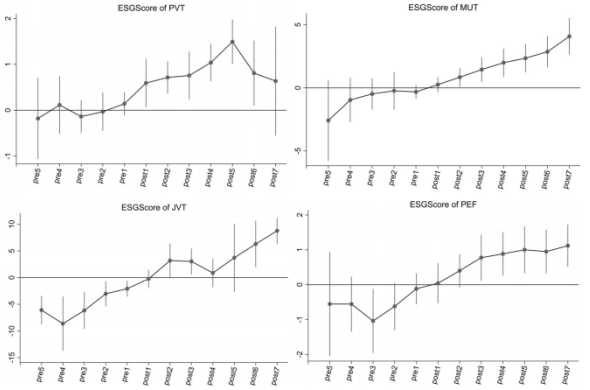

Figure 3 Heterogeneity test by category of signatory institutions

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5.3.4 With Respect to Financial Institution Category

PF, HF and PB improve firms' ESG performance after the first investment. PF managers and HF managers favor firms with poorer ESG performance. Insurance firms invest in poorer performing firms, but the disadvantage does not disappear.

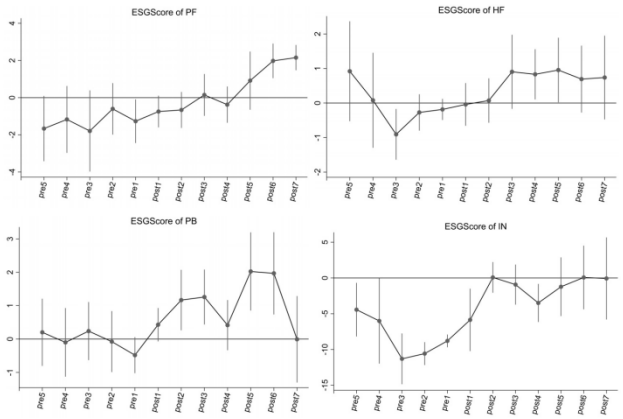

Figure 4 Heterogeneity test by type of financial institution

5.4 Robustness Test

A regression model of ESG scores was developed with separate indicators for each country to measure the change in ESG performance before and after the investment, and the robustness of the results was assessed by calculating the parameter β,counting the number of positive and negative significant results, and calculating the proportion(PR)

$$ESG_{i,t}=\alpha+\beta_{-1}*pre1_{i,t}+\beta_{-1US}*pre1US_{i,t}+\beta_{-1UK}*pre1UK_{i,t}+\beta_{-1CHINA}*pre1CHINA_{i,t}+...+CV_{i,t-1} \quad (1)$$

$$ESG_{i,t}=\alpha+\beta_{0}*post_{i,t}+\beta_{0US}*postUS_{i,t}+\beta_{0UK}*postUK_{i,t}+\beta_{0CHINA}*postCHINA_{i,t}...+CV_{i,t-1} \quad (2)$$

Country	pre2			pre1			post			post1			Post2		
	#Positive_coef	#Negative_coef	PR	#Positive_coef	#Negative_coef	PR	#Positive_coef	#Negative_coef	PR	#Positive_coef	#Negative_coef	PR	#Positive_coef	#Negative_coef	PR
All	9	17	0.5294	8	8	1	5	11	0.4545	10	14	0.7143	15	24	0.625
US	7	22	0.3182	10	16	0.625	11	15	0.7333	9	18	0.5	9	11	0.8182
Netherlands	8	4	2	5	4	1.25	10	5	2	7	3	2.3333	9	6	1.5
Japan	8	16	0.5	10	7	1.4286	15	5	3	13	1	13	20	2	10
Canada	8	11	0.7273	9	9	1	9	10	0.9	12	10	1.2	10	9	1.1111
UK	11	7	1.5714	9	4	2.25	8	5	1.6	8	2	4	8	2	4
Switzerland	21	17	1.2353	18	23	0.7826	19	22	0.8636	23	21	1.0952	22	20	1.1
Australia	13	19	0.6842	18	16	1.125	13	14	0.9286	13	16	0.8125	14	20	0.7
Germany	15	26	0.5769	21	21	1	21	16	1.3125	24	21	1.1429	23	24	0.9583
Luxembourg	20	8	2.5	25	8	3.125	28	16	1.75	18	10	1.8	16	10	1.6
Finland	14	23	0.6087	13	23	0.5652	10	19	0.5263	16	22	0.7273	8	29	0.2759
Ireland	7	28	0.25	11	24	0.4583	8	21	0.381	14	26	0.5385	13	21	0.619
France	9	19	0.4737	7	15	0.4667	13	13	1	12	17	0.7059	14	19	0.7368
HongKong	0	0		0	0		0	0		0	0		0	0	
Sweden	8	14	0.5714	4	9	0.4444	5	6	0.8333	6	9	0.6667	5	5	1
Chile	0	0		0	0		0	0		0	0		0	0	
Peru	0	0		0	0		0	0		0	0		0	0	
Belgium	31	30	1.0333	34	36	0.9444	30	42	0.7143	34	37	0.9189	21	25	0.84
Brazil	0	0		0	0		0	0		0	0		0	0	
Norway	0	0		0	0		3	4	0.75	15	10	1.5	17	11	1.5455
Italy	0	0		0	0		0	0		0	0		0	0	
South Africa	20	18	1.1111	19	24	0.7917	17	22	0.7727	11	19	0.5789	14	26	0.5385
Denmark	3	3	1	22	14	1.5714	16	10	1.6	19	11	1.7273	15	12	1.25
NewZealand	9	4	2.25	9	3	3	7	1	7	7	3	2.3333	4	4	1
China	21	21	1	23	34	0.6765	24	33	0.7273	19	15	1.2667	21	13	1.6154

Figure 5 Robustness test results

The robustness test reveals that firms in different countries have different types of dynamic changes in the impact of ESG investments. Japan, the United Kingdom and France show the dynamic impact type, indicating that the impact of ESG investment on the performance of firms in these countries shows complex changes over time; while New Zealand and German firms show the dynamic catering type, and the catering behaviors of firms before and after the investment are characterized by dynamics in these countries, which further emphasizes the importance of considering the country differences and the dynamic changes in the study of the relationship between ESG investment and firm performance. This further emphasizes the importance of considering country differences and dynamic changes when studying the relationship between ESG investment and firm performance.

6. Conclusions and Recommendations

Through the empirical analysis of different countries and types of organizations, it is found that the relationship between ESG investment and firm performance is not a

simple linear relationship. In some cases, ESG performance improves when firms are invested in by UNPRI signatories, but this improvement varies across firms and countries and is uneven across different dimensions such as environmental, social and governance. firms have behaviors that cater to ESG investments, and some firms improve their ESG performance before investing, but not all of them sustain it after investing, suggesting that their ESG behavior may be influenced by their investment expectations and is somewhat strategic.

At the firm level, it is important to formulate a long-term sustainable ESG strategy: firms should infirm ESG concepts into their core strategies, not just to cater to investment, but to comprehensively plan environmental, social, and governance goals and action plans from the perspective of long-term development, to ensure the continuity and depth of their ESG practices, and to avoid short-term behaviors. To address the problem of conflicting internal objectives, establish an effective communication mechanism so that management and departments fully recognize the importance of ESG to the long-term value of the firm, coordinate the interests of all parties, and jointly promote the development of ESG work. For example, a cross-departmental ESG working group can be set up to formulate and implement ESG strategies and report progress to management on a regular basis. While pursuing economic benefits and environmental improvement, firms should pay more attention to the improvement of social performance, such as actively participating in community development, paying attention to employee welfare, and promoting social responsibility in the supply chain, etc., in order to realize the comprehensive and balanced development of ESG and enhance the social image and reputation of firms.

At the investor level, strengthen ESG investment concepts and in-depth analysis: Investors, especially asset owners, should further deepen their understanding of ESG investment, focusing not only on short-term financial returns, but also on the long-term sustainable development ability and ESG substantive performance of firms. In the process of investment decision-making, they should strengthen the comprehensive assessment of the ESG strategy, management system and actual actions of firms, and avoid superficial and short-term investment behavior. According to the characteristics of different types of firms and industries, we will formulate diversified ESG investment strategies and actively utilize the influence of investors to guide firms to improve their ESG performance. For example, for firms with imperfect governance structure but potential for development, we can help them improve their ESG level by participating in firm governance and providing management advice, so as to realize a win-win situation between investment and firm development.

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