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The Effect of ESG Controversies on the Sustainable Investment

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To investigate the link between ESG controversies and corporate investment efficiency, we use a newly introduced ESG Controversy Score database. Our sample includes 3,182 observations across 1,155 US companies from 2012 to 2022. Unlike previous methods that depend on self-reported data prone to “greenwashing,” our approach provides a more objective view. Our findings indicate that ESG controversies significantly decrease investment efficiency, especially noticeable in investment underperformance. This negative impact is particularly pronounced in larger firms with more analysts. This study highlights the significant effect of ESG misconduct on corporate sustainability and offers a clear assessment of its influence on investment efficiency.

I. Introduction

The focus on environmental, social, and governance (ESG) concerns in capital markets has significantly increased compared to traditional measurements (Baratta et al., 2023). ESG characteristics may affect various areas, including innovation, brand value (Ajour El Zein et al., 2019), employee dedication (Zhou et al., 2023), and financial performance (Şerban et al., 2023).

Additionally, taking such preventative action may increase resilience to upcoming climate change crises (Litke et al., 2024). For this reason, corporate executives should not ignore the importance of ESG indicators and the dangers to their company’s reputation (Sheehan et al., 2023). Stock prices frequently drop due to reputational harm caused by ESG scandals (Xue et al., 2023). Other corporations suffer from significant financial and commercial losses resulting from the level of ESG controversies.

ESG incidents send the wrong message to the public, undermining public confidence and damaging company brands (Rathee & Milfeld, 2024). A poor reputation affects stock liquidity and future returns (Fernandez-Perez et al., 2022), making it difficult for a company with a damaged reputation to obtain financial resources from outside investors (Cohen, 2023).

As a result, firms with a poor reputation are more likely to have financing concerns, increasing the possibility of underinvestment problems (Lemma et al., 2022). Moreover, a damaged reputation may increase a business’s financing expenses, including interest rates on loans (Andrieş et al.,

2023). To reduce risks, banks may charge higher borrowing rates to businesses involved in ESG scandals (Crifo et al., 2019), which can increase the cost of operations for the companies and limit their ability to make investments.

These budgetary restrictions and higher lending rates brought by ESG scandals eventually obstruct investment efficiency. Furthermore, a high ESG rating improves investment efficiency and reduce information asymmetry (Pandey et al., 2023). Companies with robust ESG commitments are more inclined to disclose transparent and reliable information to investors (Zhai et al., 2022).

Due to adverse selection, corporate managers possess a deeper understanding of their company’s true financial position compared to external investors. Consequently, the heightened financing costs associated with ESG-related reputation risks are expected to affect adversely investment efficiency.

Several studies underscore the relationship between corporate investment (in)efficiency and ESG performance, especially in light of growing body of evidence that highlights the impact of corporate ESG controversies on investment performance.

In our study, we use the Thomson Reuters ESG Controversy Score of the US-listed companies from 2012 to 2022; we show that ESG controversies have a negative detrimental effect on investment efficiency. This effect is especially noticeable in larger firms and those with more analyst attention. Using an improved scoring system, the Thomson Reuters ESG Controversy Score provides an objective assessment of a company’s ESG reputation that is less prone

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to manipulation, offering insightful information for investment decisions.

Our article continues as follows. Section II presents the Methods. Section III explains the results and discussion. Section IV presents the conclusion of this paper.

II. Methods

A. Data

Our dataset comprises 3,182 observations spanning firm-years of 1,155 companies listed in the US between 2012 and 2022. The information utilized in this research originates from the Thomson Reuters DataStream database. To lessen the impact of anomalies, all continuous variables are winsorized at the 5th and 95th percentiles.

B. Variables

The model outlined as below:

$$\begin{aligned} \text{Firm Investment}_{i,(t+1)} = & \alpha_0 \\ & + \alpha_1 \text{Firm Sales Growth}_{i,t} \quad (1) \\ & + \varepsilon_{i,(t+1)} \end{aligned}$$

Where Firm Investment_{i,(t+1)} is measured by the cumulative total investment calculated at the end of the year ($t + 1$), while Firm Sales Growth_{i,t} represents the proportion of change realized in the company's "i" revenue between year (t) and ($t + 1$). Next, we categorize companies based on the scale of residuals obtained from Equation (1). We regroup companies into quartiles based on these residuals. Firms in the bottom quartile are identified as underinvesting, while those in the top quartile are labeled as over-investing and they represent the inefficient-investing companies. The remaining observations constitute the benchmark group of our study.

The classification scheme refers to three dichotomous variables to capture companies' investment efficiency. Firstly, a variable denoted Overall_t is used to reflect whether an observation overinvests or underinvests in a given year. It takes a value of one if a company falls into either the top or bottom quartile, and 0 otherwise. Secondly, the variables, Over_t (Under_t) are used as measures of over-investment efficiency (underinvestment). Hence, Over_t (or Under_t) takes a value of one if a company is situated in the top (or bottom) quartile group and 0 otherwise.

III. Results and Discussion

To examine the link between ESG controversies and corporate investment efficiency, we include year and industry fixed effects in our empirical model to further control for temporal and sector-specific variations. Table 2 presents firm-level summary statistics for the main variables of 3,182 US firms during the period 2012–2022.

We use the following regression model to investigate the relationship between ESG controversy score and firm investment efficiency:

$$\begin{aligned} \text{Investment Efficiency}_t = & \alpha_0 + \alpha_1 \text{Score}_{i,t} \\ & + \alpha_2 \sum \text{Control}_{i,t} \quad (2) \\ & + \text{Year}_{FE} \\ & + \text{Industry}_{FE} + \varepsilon_{i,t} \end{aligned}$$

Where Investment Efficiency_t represents company investment efficiency in year t , measured by Overall_t, Over_t, and Under_t. $\varepsilon_{i,t}$ is the error term, capturing unexplained variability in investment efficiency not accounted for by the included variables.

Table 3 illustrates the influence of ESG controversies on the investment efficiency within a specific year. In column (1), the overall investment efficiency findings are presented without any additional fixed effects or control variables. Column (2) shows overall investment efficiency with control variables and year fixed effects, while column (3) presents the results without fixed effects. Columns (4) to (6) present the baseline model findings, with the dependent variable being Overall_t, Over_t, and Under_t, respectively.

In columns (4) and (6), the statistics of Score_t are notably positive and statistically significant respectively (overall = 0.001, $p < 0.05$ and under = 0.001, $p < 0.01$), whereas they are statistically insignificant in column (5). The dependent variable represents the extent of unaccounted-for investment as outlined in Equation (1). In Columns (1) to (4), the variable "Overall" equals one if firms fall within either the top and bottom quartiles of unexplained investment for a given year, and 0 otherwise. Column (5) defines "Over" which takes value one if the firm falls within the top quartile of unexplained investment, and 0 otherwise. In Column (6), "Under" equals one if the any observation lies within the bottom quartile of unexpected investment, and 0 otherwise.

These findings suggest that ESG controversies significantly and adversely affect corporate overall investment efficiency, particularly leading to underinvestment inefficiency. These results coincide with the signaling and information asymmetry theory, indicating companies facing ESG controversies are penalized by the market, resulting in lower investment efficiency (Xue et al., 2023).

This study employs a new, objective ESG metric to examine how ESG reputation influences corporate investment efficiency. The Findings reveal that ESG controversies significantly diminish firms' investment efficiency, particularly leading to underinvestment inefficiencies. Larger firms and those with higher analyst coverage are more affected by this negative effect. These findings are consistent with those of Kordsachia et al. (2022). According to the results of Uyar et al. (2020), this study emphasizes the limitations of previous ESG scoring methodologies that are vulnerable to greenwashing practices, highlighting the ESG Controversy Score taken from Thomson Reuters.

Additionally, the findings suggest that the benefits of robust ESG performance go beyond transparency and reputation enhancement and include further successful investment decisions (Xu et al., 2021). These results can inform regulators in devising strategies to assist companies in enhancing their ESG performance and improving their financial decision-making processes. Moreover, our research

Table 1. Measurement of variables

Variables Explanation
Panel A: Measurement of dependent variables
Overall: if the residual of the Equation (1) falls within the group of top or bottom quartile after categorization (1 for yes, 0 for no).
Over: if the residual from Equation (1) falls within the top quartile after categorization equal to 1, and 0 for otherwise.
Under: if the residual from Equation (1) falls within the bottom quartile after sorting equal to 1, and 0 for otherwise.
Panel B: Measurement of independent variable
ESG Controversy Score taken directly from Score Thomson Reuters
Panel C: Measurement of Moderating variables
Firm size: if the total assets exceed the sample median equal to 1, and 0 for otherwise.
Analyst coverage: if the number of institutional analysts exceeds the sample median equal to 1, and 0 for otherwise.
Panel D: Control variables
Age: equal to the number of years listed on an American stock exchange
Size: equal to the natural logarithm of total assets
Ind: equal to the total number of independent directors
Leverage: measured by the total debt divided by total assets
ROE: Return on equity
Mtb: represents the Market-to-book value
Z: Altman's Z-score

Note: This table provides detail description of variables used in this study. Variables are sourced from Thomson Reuters DataStream database.

Table 2. Summary statistics

Variables	Obs.	Mean	St. Dev.	Min	Max
Score	3182	65.778	44.455	0	100
Overall	3182	0.500	0.500	0	1
Over	3182	0.250	0.498	0	1
Under	3182	0.250	0.498	0	1
Size	3182	6.399	0.814	0.309	8.972
Mtb	3182	3.001	2.824	0.229	11.819
Age	3182	3.005	1.002	0.703	5.311
Z	3182	1.385	1.901	-0.519	3.841
Ind	3182	7.707	2.423	1	16
Leverage	3182	1.799	1.008	0.979	5.219
ROE	3182	15.004	15.391	-9.776	55.955

Note: This table reports summary statistics of variables used in this study. Variable descriptions are presented in [table 1](#).

shows how firm size and external monitoring moderate a negative effect of ESG reputation on investment efficiency.

IV. Conclusion

Our research provides valuable theoretical insights into how green financial policies can advance corporate ESG performance. The ongoing debate about the effectiveness of these policies in balancing economic growth with environmental and social goals remains unresolved. Furthermore, our study offers practical implications for a range of stakeholders, including companies, policymakers, institutional investors, and others. Specifically, it provides guidance for companies on managing ESG controversies effectively. Companies should focus on the importance of ESG to

maintain legitimacy and achieve their ESG goals, leveraging policy support as a strategic advantage. This is particularly relevant as higher analyst coverage can sometimes reduce transparency in the disclosures between companies and investors.

Our findings are consistent with recent research indicating that increased external monitoring can enhance corporate sustainability awareness and performance (Rathee & Milfeld, 2024). However, it is also crucial to recognize the study's limitations; companies often undertake intensified strategic measures to strengthen their corporate social responsibility in response to scandals.

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Table 3. Impact of ESG controversies on the company investment efficiency

Dependent variable	Overall				Over	Under
	(1)	(2)	(3)	(4)	(5)	(6)
<i>Score</i>	0.001***	0.001***	0.001**	0.001**	-0.0001	0.001***
<i>Size</i>	(0.0004)	(0.0009)	(0.0012)	(0.0032)	(0.00029)	(0.0005)
		-0.043	-0.043	-0.078***	-0.215***	0.059**
		(0.014)	(0.014)	(0.033)	(0.024)	(0.024)
<i>Mtb</i>		0.005	0.005	0.005	0.047***	-0.051***
<i>Age</i>		(0.002)	(0.002)	(0.003)	(0.002)	(0.002)
		-0.002**	-0.002**	-0.002	0.001*	-0.003**
		(0.0003)	(0.0003)	(0.0003)	(0.0003)	(0.0003)
<i>Z</i>		-0.055***	-0.051***	-0.084***	-0.079***	0.011
		(0.006)	(0.006)	(0.017)	(0.014)	(0.014)
<i>Ind</i>		-0.010	-0.011	0.016	0.013	0.013
		(0.008)	(0.008)	(0.008)	(0.006)	(0.006)
<i>Leverage</i>		0.055***	0.054***	0.009	0.045***	-0.038*
		(0.006)	(0.006)	(0.018)	(0.009)	(0.009)
<i>ROE</i>		0.0005	0.0007	0.004	-0.0001	0.002*
		(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Industry FE	NO	NO	NO	YES	YES	YES
Year FE	NO	NO	YES	YES	YES	YES
Observations	3182	3182	3182	3182	3182	3182
R-squared	0.002	0.034	0.042	0.144	0.223	0.269

Note: The robust standard errors are clustered by firms. ***, **, and * represent statistical significance at the 1%, 5%, and 10% levels, respectively.



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