

ESG AND ENGAGEMENT: AN EMPIRICAL APPROACH

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Abstract

This study empirically analyses the relationship between engagement activities and companies' attention towards sustainability issues. Considering Schelling's theory on focal points (1960), we argue of convergence of sustainability performance towards to engagement in environmental activities. Specifically, considering the Climate Action 100+ Initiative, we carry out a cross sectional analysis on a novel sample of 162 listed companies distributed at global level which operate in high-intensity emission sectors. To strength our results we employ a robustness analysis by using ESG ratings provided by Thomson Reuters and Bloomberg in order to take into account potential bias related to the heterogeneity among definitions and ESG factors' weight among agency ratings. Additionally, we provide a Peers' analysis to further investigate on determinants on engagement activities. The novelty of the sample and increasing attention by scholars and practitioners to sustainability issues related to engagement activities encourage to critically evaluate the validity of the intrinsic link of this sustainable path.

Keywords: engagement, sustainability, ESG score, focal point, cross sectional data, panel data

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Introduction

This research tries to investigate the connection between sustainability performance and firms' engagement activities. The paper focuses its attention on a sample of 162 worldwide listed companies belonging to different sectors featured by high-intensity emissions, encompassing the 2011-2021 period. In the light of this evidence, we do concentrate our attention on environmental engagement, specifically related to high intensity emissions companies and we aim to deepen the potential link between a firm's involvement into environmental issues and its sustainability performance, assessed through the Environmental, Social, and Governance (ESG) score. The theoretical framework of our study is anchored in Schelling's concept of focal points (1960). Focal points are supposed to be solutions that people tend to choose in the absence of communication, coordination, or explicit agreements. According to Schelling, whenever two people were eventually asked to meet in New York City without any specific location or means of communication, they might both choose Times Square as the focal point because it is a well-known and easily recognizable location. In this way, people can converge on certain choices even without explicit communication, based on shared expectations, cultural and or social conventions, being in other words an implicit solution to a feasible market failure due to the lack or asymmetries of information. Focal points may be not optimal from a strategic standpoint but are rather points that stand out due to their perceived significance. Along this way, as more specifically illustrated below, we argue that, over time, we may observe a sort of convergence of sustainability performance toward a specific focal point represented by the engagement intensity in environmental activities of the firm.

Our empirical evidences are likely to confirm that firms with historically lower ESG scores are more inclined to accelerate their progress toward a central point delineated by the engagement activities. In this research, we will test the presence of a sustainability path, as evidenced by the change in the sign of the ESG Score coefficient between the above-mentioned encompassed period.

The purpose of our research question lies on the noticeable surge in the significance of ESG scores, becoming this issue progressively more popular among scholars and practitioners as well. Notwithstanding companies were not so keen on putting attention on these metrics, their awareness in

relevance of ESG factors is strongly increasing. Empirical evidences do show that a transformative shift has taken place over a short period of time: companies have proactively responded to this changing cultural and managerial landscape by recalibrating their priorities and recognizing the critical role that ESG scores play in their operations and in their reliability in risk monitoring activities.

This shift in corporate behavior has led to an evolution in the relationship between ESG scores and engagement activities. This study attempts to empirically illustrate this transformation. Specifically, it endeavors to determine whether there has been a shift, or in other words, a change in the direction of the relationship between ESG scores and engagement activities over time.

The shift indicates that businesses are progressively harmonizing their ESG initiatives with their engagement strategies, indicating a growing alignment over time. This alignment is viewed as a maturation process, where ESG ratings are steadily moving towards a central focal point, represented by an optimal level of engagement activities carried out by these companies. To summarize the primary emphasis of the study is dedicated to the development of ESG scores gradually converging towards a pivotal center, which we've identified as the engagement activities.

The remainder of the paper is structured as follows. In **section 2**, we will take into analysis the conceptual framework and the literature review regarding the engagement phenomenon. We will identify the most prevalent definitions of engagements and we will illustrate the one adopted in this study. **Section 3** presents the reference empirical model with the hypotheses to be tested. **Section 4** focuses on defining our sample and presents the most significant outcomes. Finally, **Section 5** will provide some concluding remarks and an agenda for future research.

Section 2. Literature Review and Conceptual Framework

In recent years, corporations have faced huge and challenging pressure from their various stakeholders to actively pursue environmental and social objectives. Notably, in 2019, it took place a significant surge in investments, with \$20.6 billion channeled toward funds explicitly divesting from

companies considered as "non-sustainable." Moreover, a recent survey (Broccardo et al., 2022). highlights a noteworthy shift in consumer behavior, with 38% of Americans presently engaging in boycotts against at least one company, registering a significant increase from the 26% reported just in the previous year.

At the same time, an increasing volume of academic research has questioned the traditional assumption that companies should predominantly prioritize profit maximization or market value. This perspective arises in a world where external factors, such as pollution or the increase of economic inequality, frequently arising from shortcomings in public management, both domestically and internationally, continue to be inadequately managed (Hart and Zingales, 2017; Mayer, 2018).

In the contemporary landscape of corporate governance, the phenomenon of shareholder activism has emerged as a powerful and dynamic ingredient in corporate life. Shareholder activism represents a multifaceted arena where both individual and institutional investors, wield their ownership's influence to shape the strategic direction, corporate governance, and social responsibility practices of corporations (Goranova and Ryan, 2014). This field of enquiry encompasses a spectrum of shareholder activities, ranging from proxy fights and shareholders' proposals to direct engagement and quiet negotiations with boards and management, aimed at achieving a variety of objectives, from profit maximization (Ertimur et al., 2011) to environmental and social responsibility (Flammer et al., 2021).

Engagement in ESG issues by institutional investors stands apart in terms of motivation when compared to conventional shareholder activism undertaken by institutions like pension funds and mutual funds. This distinction also extends to hedge fund activism and entrepreneurial activism in a more general sense. Traditional shareholder activism and hedge fund activism are focused to finalize their efforts on matters that primarily concern the interests of shareholders. In contrast, ESG activism places its concerns on matters which are related not only to shareholders but also to a wider array of stakeholders, like workforces, customers, creditors, environment, and communities. According to the engagement's scope, different actions are taken by the asset manager. Dimson et al. (2015) classify the engagement toward the target companies in two different typologies of actions: *Raising Awareness* and *Request for Change*. When the data provider records an engagement as *Raising Awareness*, this action is devoted to inform and providing

an alert for the target companies about specific ESG issues. In contrast, a *Request for Change* plays usually a more stringent role, in which the asset manager asks for specific improvements in the target company to address its unsatisfactory ESG practice.

Our paper, as explained in the following section, adopts a somewhat different approach to measure engagement. We do not focus our interest on the actions taken by investors in relation to the target company, but on the specific actions which the target company is undertaking to address ESG issues, based on the assumption that engagement activities constitute a focal point on the attention devoted over time by companies to sustainability issues.

As theorized by Schelling (1960), focal points rely on shared expectations and common knowledge among individuals. Rational agents understand that others are likely to choose the same focal point based on mutual awareness of certain salient features in a specific situation or context. These features could be cultural, symbolic, or easily recognizable, making them natural points of convergence for individuals making decisions independently. Rational agents, even in the absence of direct communication, may independently converge on the same focal point as a way to coordinate their actions. This occurs because they anticipate that others will also recognize and choose the same focal point, leading to a form of unspoken coordination. Cultural norms, social conventions, and shared values play a crucial role in shaping focal points. By independently choosing the same focal point, individuals can achieve a form of implicit coordination, which is particularly relevant in situations where direct communication or formal agreements are totally or partially missing.

Schelling's theory of focal points has found application in various fields due to its relevance in understanding coordination and decision-making with limited information. Focal points are widely used in game theory to study strategic interactions between rational decision-makers. The theory helps explain how players in a game can reach coordinated outcomes even in the absence of explicit communication or binding agreements (Dixit, 2006). In political science, Schelling's theory has been used to analyze political behavior, coalition formation, and international relations. Focal points can provide insights into

how nations might coordinate their actions in diplomatic situations or how political actors might converge on certain policy outcomes (Adler and Pouliot, 2011).

In management fields, focal points are relevant in marketing and branding, where companies aim to create easily recognizable and memorable symbols or images; or in negotiation settings where parties seek to reach agreements without explicit communication. In crisis situations, such as natural disasters or emergencies, focal points may emerge as key locations for coordination and resource allocation (Isoni et al., 2014).

For the purposes of this article, it is crucial to emphasize how the engagement activity can be considered a focal point towards which companies trying to disclose and give evidence of their commitment to sustainability direct their efforts. Consequently, we anticipate a gradual alignment over time between the ESG score (i.e., our proxy for sustainability attention) and the Environmental Engagement score (that serves as an indicator of companies' focus on managing environmental issues); thus, it is logical to posit that companies more attentive to sustainability concerns will, over time, converge towards a heightened focus on engagement activities.

This latter means that in dynamic terms, the convergence process and Schelling's focal points theory can be closely connected, especially when considering how corporations adapt and adjust their strategies over time. In dynamic coordination processes, agents often adapt and learn from the outcomes of their previous interactions. As agents observe patterns of behavior and outcomes, certain choices may emerge as natural focal points based on past experiences. This adaptive learning process aligns with the concept of focal points, where certain choices and strategies become more salient over time. This theory has been interpreted as a hybrid system, which works even without an agent who hierarchically sustains the coordination towards a specific aim.

Our study relies on this theory in the attempt to face climate change's urgency. As this latter challenge intensifies, enterprises are increasingly acknowledging the imperative to transition towards more sustainable practices. While governmental regulations and societal expectations wield considerable

influence in propelling this transformation, private endeavors also emerge as potent pushes, prompting businesses to embrace ecologically responsible conduct.

Section 3. Data and empirical strategy

An illustrative instance of this latter private effort can be found in Climate Action 100+, a collaborative undertaking inaugurated by a consortium of over 80 entities with the aim of expediting climate-related initiatives within the corporate sphere⁵. This initiative provides a structured framework wherein firms can articulate ambitious climate-centric objectives, institute efficacious measures to mitigate their environmental footprint, and engage in cooperative endeavors with industry counterparts to effect systemic change.

The efficacy of Climate Action 100+'s coordinating initiatives emanates from several factors. Primarily, the robust network of participating entities instigates a form of peer influence, compelling firms to harmonize their sustainability practices with those exhibited by their counterparts. Witnessing competitors embrace climate aspirations and undertake concrete measures to curtail emissions can galvanize other companies to emulate such conduct.

Secondarily, Climate Action 100+ delineates a trajectory for firms to gauge and monitor their advancements towards sustainability objectives. This accountability mechanism aids companies in maintaining focus on their commitments and discerning areas necessitating refinement. Through periodic disclosure of progress reports, companies subject themselves to scrutiny from both peers and the public, thereby reinforcing their dedication to sustainable practices.

Furthermore, it facilitates the exchange of knowledge and collaborative initiatives amongst participating entities. This dissemination of best practices and insights enables firms to assimilate lessons from one another's experiences and adopt strategies that are more efficacious in mitigating their

⁵ This initiative has gathered so far over 700 investors, responsible for \$68 trillion in assets under management, that are engaging companies on improving climate change governance, cutting emissions and strengthening climate-related financial disclosures (Climate Action 100+ Signatory Handbook, 2023).

environmental impact. The collaborative milieu fostered by the initiative can expedite the integration of sustainable practices throughout the corporate landscape.

In addition to these coordinating effects, Climate Action 100+ can exert an indirect sway on enterprises by shaping perceptions among investors and consumer preferences. As an increasing number of companies commit to ambitious climate objectives and manifest tangible progress, investors and consumers are progressively acknowledging the intrinsic value of sustainability. This favorable market sentiment can confer a competitive advantage upon firms deemed as vanguards in environmental responsibility.

The Environmental Engagement score is provided by the Climate Action 100+. As stated in their website⁶, the purpose of Climate Action 100+ is to ask that the world's largest corporate greenhouse gas emitters take necessary action on climate change, such as: *i.* implement a strong governance framework which clearly articulates the board's accountability and oversight of climate change risk; *ii.* take action to reduce greenhouse gas emissions across the value chain, including engagement with stakeholders such as policymakers and other actors to address the sectoral barriers to transition; *iii.* provide enhanced corporate disclosure and implement transition plans to deliver on robust targets.

This should be in line with the final recommendations of the Task Force on Climate related Financial Disclosures (TCFD) and other relevant sector and regional guidance, to enable investors to assess the robustness of companies' business plans and improve investment decision-making.

In the specific, the Engagement Intensity score (expressed as a percentage score from 0 to 100) is a measure of the level of policy engagement by the company, whether positive or negative. Climate Action 100+ is served by InfluenceMap⁷ to determine the Engagement Score. InfluenceMap defines "policy engagement" based on the UN Guide for Responsible Corporate Engagement in Climate Policy (2013), which defines a range of corporate activities as engagement, such as advertising, social media, public relations, and direct contact with regulators and elected officials.

⁶ See <https://www.climateaction100.org/approach/engagement-process/>

⁷ a UK-based non-profit Community Interest Company (CIC) and a US-based 501c3 charity.

According to its methodology, Engagement Intensity Scores above 12% indicate active engagement with climate policy, and scores above 25% indicate highly active or strategic engagement with climate policy. Scores below 5% indicate low-level engagement with climate policy.⁸

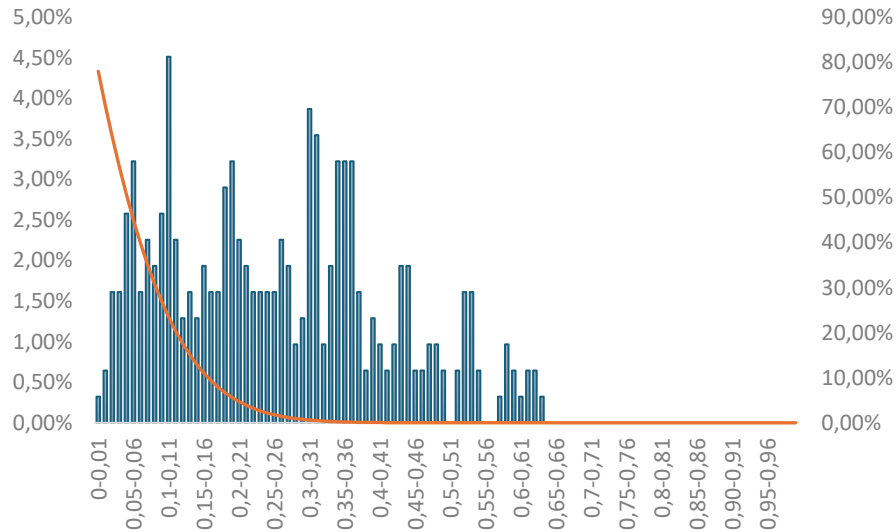
According to the data provided, our study will firstly test therefore, whether there is a convergence of the ESG Score towards the Engagement Intensity Score. We will also extend our analysis with the use of the ESG Controversy Score, which is a proxy of firm's involvement in controversies related with sustainable issues. Through this measure, that will be used alternatively to the ESG Score, we aim to capture also a short-term effect on the engagement activities. From a theoretical perspective it is intuitive that a firm involved in some controversies will put in place some engagement activities on those issues in order to re-establish a stronger reputation.

The dataset used for the empirical analysis collects 162 worldwide listed companies from different sectors. In particular, the sample is composed by 75 Energy firms (46,30 % of the sample), 50 Industrial firms (30,86% of the sample), and a smaller number of 25 and 12 companies operated in Transportation and Consumer Goods and Services sectors (respectively 15,43% and 7,41% of the sample). With regard to the geographical distribution of our sample, more than 60% of it is composed by firms located in North America (30%) and in Europe (33%); the rest of the firms are mostly located in Asia (20%), and then in South America, Australia, and Africa.

Figure 1 shows the distribution function of Engagement Intensity score for the entire sample calculated on October 2022, showing that most of the scores are distributed in a range between 0,1 and 0,66.

Fig.1: Engagement Intensity Score's distribution on October 2022.

⁸ For more details, please see: [https://lobbymap.org/page/About-our-Scores#:~:text=Engagement%20Intensity%20\(expressed%20as%20a, strategic%20engagement%20with%20climate%20policy](https://lobbymap.org/page/About-our-Scores#:~:text=Engagement%20Intensity%20(expressed%20as%20a, strategic%20engagement%20with%20climate%20policy)



Source: Climate Action 100+. Author's elaboration.

In order to analyse whether exists a convergence of the ESG scores towards the engagement activities, we have collected the ESG Score provided by Thomson Reuters. The Thomson Refinitiv ESG rating is based on over 450 company-level ESG measures, of which they select a subset of 178 most comparable and relevant fields to power the overall company assessment and scoring process. Considering several parameters including comparability, data availability and industry relevance, this methodology defines three ESG overall (ESG Score, ESG Combined Score and ESG Controversies Score), the three main pillars underlying the ESG Score (Environmental Pillar Score, Social Pillar Score and Governance Pillar Score), and 10 subcategories. Table 2 shows the descriptive statistics for the Engagement Intensity Score and all ESG categories for the whole sample.

Tab.2 - Descriptive statistics for Engagement Intensity Score and ESG Score categories.

Descriptive statistics (Overall)					
	mean	Average	min	max	dev.st
Engagement Intensity Score	26.02%	25.00%	1.00%	63.00%	15.54%
ESG Score	75.05	75.88	30.39	93.97	12.25
ESG Combined Score	60.24	58.67	30.39	91.29	16.00
ESG Controversies Score	56.01	69.79	1.00	100.00	40.29
Environmental Pillar Score	76.27	80.52	34.95	97.83	15.03

Social Pillar Score	76.26	79.99	28.12	97.41	13.90
Governance Pillar Score	71.90	78.80	18.81	71.90	71.90

Source: Thomson Reuters Datastream. Author's elaboration.

Section 4. Research Methodology: empirical steps of analysis e regression models

The study proposed has been developed through two different analyses.

In the first one, assuming the underlying hypothesis of a long-lasting ESG approach convergence towards a specific level of environmental engagement, we aim to verify the following research hypothesis:

H_0 : “The relationship between the long-lasting ESG ($t=2011$) and the Engagement Intensity Score is negative and statistically significant.”

In order to test the research hypothesis, we consider the OLS cross-sectional analysis, which allow us to verify whether the adoption of a sustainable approach by high emission companies involved into the Climate Action 100+ initiative contributes to a greater environmental engagement at a specific point of time ($t=2022$). According to cross section methodology, we employ the following OLS regression model:

$$\text{Ln Engagement Intensity Score}_{it(=2022)} = \alpha + \beta_1 \ln \text{ESG Score}_{i,t-1(=2021)} + \beta_2 \ln \text{ESG Score}_{i,t-11(=2011)} + \beta_3 \ln X_{i,t(=2022)} + \gamma + \lambda + \varepsilon_i$$

Where the dependent variable (Y_{it}) is the Engagement Intensity Score available to 2022 provided for the 162 high- emissions companies involved into the initiative promoted by the Climate Action 100+ platform. The main independent variables ($X_{i,t-n}$) are represented by the ESG Score provided by Thomson Reuters referred to the long term (ESG Score for 2011) and the ESG Score for 2021. Additionally, we implement a parsimonious set of control variables ($\sum X_{i,t}$) measured at the same period of time of the dependent variable in line with the existing literature (Penrose 1959; Hansen G.S and Wernerfelt B 1989; Fama and French 1992; Dalbor et al. 2004): the natural logarithm of total assets as a proxy of firm's size (*Size*), the natural logarithm of the ratio between total assets and common shareholders' equity (*Leverage*), the number of Employees and a proxy of *Profitability* captured by the one-year lagged Return on Assets

($ROA_{i,t-1}$), computed as the ratio between Earnings Before Interest, Tax and Depreciation (EBITDA) and total asset. Country (γ) and sectoral dummies (λ) are also both included. With the exception of the one-year lagged ROA, all predictor variables are log-transformed by means of natural logarithm.

In the second step of analysis, we try to determine those variables which mainly contribute to lead companies to spend their time and resources in engagement activities. Specifically, this second step is concerned with the analysis of an expanded sample in order to explain the likelihood of the existence or non-existence of the engagement activity. In this sense, a new sample was constructed consisting of the starting companies covered by the Climate Action 100+ initiative and two comparable companies for each of them. The Peers analysis takes into consideration only "direct" competitors, i.e., those companies that offer products or services in the market that perfectly overlap with those offered by the companies considered in the initial sample. Specifically, Peers were selected through Refinitiv's "Peers' Analysis" application based on the "StarMine" tool that identifies comparable companies based on the consensus of leading analysts. The new sample is represented by a panel dataset of 486 listed companies from 2011 to 2022, distributed globally and active in the sectors already identified: Consumer Goods and Services, Energy, Industrial and Transportation.

Since the identified peers are not among the Climate Action 100+ signatories, the new sample allows for a Logit and Probit analysis through which to identify the association between ESG score and the likelihood of having an engagement activity such as that identified by Climate Action 100+.

To test this relationship, we set the following research hypothesis:

H_1 : “A long-lasting ESG ($t=2011$) determines the likelihood that companies involve in engagement activities.”.

The regression model identified for the second step can be expressed as follows:

$$DummyEngagement\ Score_{i,t=2022} = \ln ESG\ Score_{i,(t-1)} + \ln ESG\ Score_{i,t=2011} + \ln X_{i,t} + \gamma + \lambda + \varepsilon_i$$

The dependent variable (Y) is the Dummy Engagement Score, which takes a value of 1 for those companies that had an Engagement Activity in 2022, as identified by Climate Action 100+, and 0

otherwise, and a set of control variables (i.e. *Size*, *Leverage*, ROA_{t-1}). An intercept capturing the ESG score as of 2011 was included to account for the convergence phenomenon. Lastly, there are sectoral (λ) and geographic dummies (γ), inserted in order to eliminate potential distortionary effects.

Section 5. Results

Section 5.1. Cross section Analysis

Table 3 shows the descriptive statistics for accounting variables employed in our baseline model to test the first research hypothesis (H_0).

Tab.3 - Descriptive statistics for control variables

Variable	Min	Max	Mean	Median	Std. deviation
Total Asset	1,439.748	783,603.887	88,267.331	53,496.479	107,087.079
Total Debt/Enterprise Value (Leverage)	-1.375	3.083	0.414	0.381	0.402
Employees	3	15	11	11	2
ROA (t-1)	-2.81	19.22	1.76	1.83	0.85

Table 4 highlights the results of the regression between Engagement Intensity Score and the ESG Score both at time 2021 and at time 2011. If we consider the Refinitiv ESG Score at time 2021 we may observe a positive link with Engagement Intensity Score, but not always significant. As we consider the same relationship considering the ESG Score at the year 2011, that is the first value of our observation period, the association becomes negative and always statistically significant until 1% (p-value < 0.001).

In empirical terms, a negative initial value turn rounded into a positive one over the last observation period is coherent with the presence of a convergence process, as stated in the conceptual framework of this paper.

From a quantitative perspective, we may state that for a 10% increase in Log ESG Score (2021), the Engagement Intensity Score increases of 0.81 [8.52*ln(1.1)]. On the other side, when the Log ESG Score at 2011 increases by 10%, the dependent variable decreases with values between 0.57 and 0.41.

Whether we consider the Engagement Intensity Score as the “focal point”, we may argue the existence a sort of “convergence” of the ESG Score towards a greater attention to engagement issues. We may assume that companies with lower ESG in the past tend to move faster towards the focal point defined by the Engagement Intensity Score. In light of this, our findings confirm the existence of sustainability path captured by the change in the sign of Log ESG Score coefficient between the two observation moments.

Tab.4: Engagement Intensity Score and ESG Score.

	Dependent variable Log of Engagement Intensity Score							
	(1.a)	(1.b)	(2.a)	(2.b)	(3a.)	(3.b)	(4.a)	(4.b)
Log of ESG Score	.852*	.498	.648	.275	.813*	.375	.633	.14
2021								
Log of ESG Score	(.446)	(.576)	(.448)	(.587)	(.43)	(.543)	(.42)	(.548)
2011	-.567**	.056	-.594**	.063	-.42*	.195	-.438*	.221
Size	(.229)	(.299)	(.229)	(.323)	(.221)	(.301)	(.225)	(.325)
Log of Employees	.052	.022	.009	-.003	-.022	.002	-.073	-.045
	(.087)	(.101)	(.094)	(.106)	(.088)	(.105)	(.094)	(.11)
	-.021	.009	-.005	.01	.06	.049	.083	.069
Log of Leverage	(.067)	(.078)	(.068)	(.08)	(.073)	(.094)	(.073)	(.093)
	.131	.058	.082	.049	.111	.034	.066	.026
ROA (t-1)	(.101)	(.109)	(.105)	(.116)	(.103)	(.112)	(.104)	(.117)
	.01	.001	.003	.002	.014	.004	.006	.007
	(.01)	(.01)	(.01)	(.01)	(.01)	(.01)	(.011)	(.011)
Lagged dependent variable	YES	YES	YES	YES	YES	YES	YES	YES
Country dummies	NO	NO	YES	YES	NO	NO	YES	YES
Sectoral dummies	NO	NO	NO	NO	YES	YES	YES	YES
Constant	-3.519**	-4.29**	-2.201	-3.175	-4.075**	-4.969**	-2.88	-3.808*
	(1.778)	(1.966)	(1.896)	(2.094)	(1.843)	(1.921)	(1.957)	(2.046)
Observations	131	135	131	135	131	135	131	135
R-squared	.055	.02	.09	.043	.091	.061	.129	.093

*This regression shows an OLS cross-sectional analysis. The dependent variable is the Engagement Intensity Score. The main explicative variables are the ESG Score at time 2021, and the ESG Score at time 2011. Robust errors in brackets; errors are clustered on firm; ***, ** and * denotes significance at the 1%, 5% and 10% level respectively*

Table 5 illustrates the results of the regression between Engagement Intensity Score and the ESG Score assuming the condition of non-linearity. This is evident in our analysis, where the sign of the coefficient of the Log of Employees changes upon incorporating the squared term. As we consider the same relationship for the ESG Score at the year 2011 (the first value of our observation period), also in this regression analysis the association becomes negative and always statistically significant until 1% (p-value < 0.001) as we consider the overall ESG rating provided by Refinitiv, confirming the presence of a convergence process. On the other hand, whether we take into consideration the Bloomberg ESG rating the association becomes positive, even though it is not significant.

Among the control variables we included the quadratic term of the firm's size measure (Employees) which plays the role of a simple robustness test seeking for a non-linear relationship between the size and the dependent variable. Results are puzzling and suggest the existence of non-linearities in the relationship we are investigating. In specific, the relation between the Engagement Score and the size is characterized by an inverse U-shaped form. The impact of greater size is positively related to the Engagement Score of firms until the size of the firm reaches a certain level, afterwards the relation becomes negative. This is evident looking at Column 3 and 4 of Table 5. We may interpret these outcomes as the existences of other devices, like market power or political connections, for companies bigger by size in addressing the same institutional debates about sustainability.

To conclude, we may confirm the presence of a convergence process highlighted by the change in the sign of the ESG coefficient from a negative initial value into a positive one over the last observation period.

Tab.5 – Engagement Intensity Score and ESG Score with Log Employees Squared.

	Dependent variable Log of Engagement Intensity Score							
	(1.1.a)	(1.1.b)	(2.1.a)	(2.1.b)	(3.1.a)	(3.1.b)	(4.1.a)	(4.1.b)
Log of ESG Score 2021	.605	.498	.423	.275	.61	.375	.478	.14
	(.425)	(.576)	(.42)	(.587)	(.438)	(.543)	(.428)	(.548)
Log of ESG Score 2011	-.494**	.056	-.522**	.063	-.382*	.195	-.412*	.221

	(.216)	(.299)	(.213)	(.323)	(.212)	(.301)	(.217)	(.325)
Size	.094	.022	.058	-.003	.036	.002	-.02	-.045
	(.087)	(.101)	(.098)	(.106)	(.092)	(.105)	(.108)	(.11)
Log of Employees	.555***		.501***		.502***		.397*	
	(.181)		(.19)		(.189)		(.21)	
Log of Employees ²	-.03***	.004	-.027**	.005	-.025**	.025	-.018	.035
	(.01)	(.039)	(.011)	(.04)	(.011)	(.047)	(.013)	(.046)
Log of Leverage	.085	.058	.041	.049	.066	.034	.033	.026
	(.102)	(.109)	(.103)	(.116)	(.104)	(.112)	(.104)	(.117)
ROA (t-1)	.009	.001	.003	.002	.012	.004	.005	.007
	(.01)	(.01)	(.01)	(.01)	(.01)	(.01)	(.01)	(.011)
Lagged dependent variable	YES	YES	YES	YES	YES	YES	YES	YES
Country dummies	NO	NO	YES	YES	NO	NO	YES	YES
Sectoral dummies	NO	NO	NO	NO	YES	YES	YES	YES
Constant	-6.18***	-4.29**	-4.675**	-3.175	-6.2***	-4.969**	-4.455**	-3.808*
	(1.83)	(1.966)	(2.059)	(2.094)	(1.862)	(1.921)	(2.162)	(2.046)
Observations	131	135	131	135	131	135	131	135
R-squared	.087	.02	.113	.043	.109	.061	.137	.093

*This regression shows an OLS cross-sectional analysis. The dependent variable is the Engagement Intensity Score. The main explicative variables are the ESG Score at time 2021, and the ESG Score at time 2011. Robust errors in brackets; errors are clustered on firm; ***, ** and * denotes significance at the 1%, 5% and 10% level respectively*

In order to provide more robust evidence, we implement both ESG ratings providing by Refinitiv and Bloomberg. This approach is driven by the need to assess how the results obtained vary as the data provider of the ESG Score changes. As pointed out by Berg et al. (2022), ESG scores constructed by different providers, have a low correlation with each other; therefore, we can argue that, even in our case, a variation in the results confirm what identified in the literature. The conceptual framework is therefore very fragile. ESG ratings are very heterogeneous due to the derivation from alternative and competing definitions. Hence, a common standard for ESG is missing and makes the sustainability of a company very difficult to assess and, in some cases “unratable” (Billio et al. 2021).

As showed in Table 4 and 5, from a more general perspective, evidence resulting by the use of two different data providers are in line between them, although just the coefficients for Refinitiv ratings seem to be significant. This could be due to several factors, such as the fact that Refinitiv ESG scores are based on a wider range of factors than Bloomberg ESG scores. Bloomberg ESG scores seem to be more focused on environmental factors, which are increasingly seen as being important to investors. As

clarified initially, Climate Action+ initiative involves those companies which tend to produce a high level of emissions. We may argue that evidence is no longer significant as we used Bloomberg Overall ESG Score due to these are overweighted for Environmental issues.

Table 6 outlines the results of the regression between Engagement Intensity Score and the ESG Controversies Score both at time 2021 and at time 2011. As we consider the score of controversies issues we may outline a significant relationship just between the Log of Engagement Intensity Score and the Log of ESG Controversies Score at time 2021. According to this evidence, we may argue that given an increase of 10% of the Log ESG Controversies Score, the dependent variable increases of 0.23 approximately [$2.37 \cdot \ln(1.1)$], with a statistical significance until 1% (p -value < 0.001).

This strong relationship between the Engagement Intensity Score and ESG Controversies Score may find a valid explanation into the growing attention to the reputational issue among the broad sustainable topics. Despite other elements, issues related to companies' reputation need to be consistently monitored. This provides a valuable reason for the explanation of this stronger association at time 2021 than at time 2011.

Tab.6 – Engagement Intensity Score and ESG Controversies Score.

		Dependent variable: Log of Engagement Intensity Score			
		(1)	(2)	(3)	(4)
Log of ESG Controversies Score	2021	.221***	.255***	.205**	.237***
		(.08)	(.081)	(.079)	(.079)
Log of ESG Controversies Score	2011	.029	.033	-.006	-.006
		(.078)	(.082)	(.085)	(.091)
Size		.133	.094	.055	.004
		(.094)	(.097)	(.106)	(.112)
Log of Employees		.024	.034	.09	.108
		(.074)	(.074)	(.086)	(.083)
Log of Leverage		.129	.059	.117	.045
		(.096)	(.099)	(.099)	(.099)
ROA (t-1)		.015	.006	.018**	.008
		(.009)	(.009)	(.009)	(.01)
Lagged variable	dependent	YES	YES	YES	YES

Country dummies	NO	YES	NO	YES
Sectoral dummies	NO	NO	YES	YES
Constant	-5.096*** (1.699)	-4.962*** (1.708)	-4.75*** (1.747)	-4.548** (1.8)
Observations	131	131	131	131
R-squared	.089	.14	.122	.178

*This regression shows an OLS cross-sectional analysis. The dependent variable is the Engagement Intensity Score. The main explicative variables are the ESG Controversy Score at time 2021, and the ESG Controversy Score at time 2011. Robust errors in brackets; errors are clustered on firm; ***, ** and * denotes significance at the 1%, 5% and 10% level respectively.*

Eventually we have run the baseline regression by including the squared variable of Log Employees. Table 7 shows the results of the regression between Engagement Intensity Score and the ESG Controversies under the assumption of non-linearity. Findings are in line with the previous empirical evidence, confirming that a lower involvement in controversies issues, captured by a greater ESG Controversies Score, tends to increase the score associated to the Engagement Intensity for companies' activities and policies. So, the statistical significance still high showing a p-value lower of 1%. Additionally, the hypothesis of non-linearity, captured by the difference in the sign of coefficient of the variable "Log of Employees" and its squared term.

Tab.7 – Engagement Intensity Score and ESG Controversies Score with Log Employees Squared.

Dependent variable: Log of Engagement Intensity Score					
		(1)	(2)	(3)	(4)
Log of ESG Controversies 2021	ESG Score	.207** (.081)	.24*** (.082)	.199** (.079)	.233*** (.081)
Log of ESG Controversies 2011	ESG Score	.047 (.077)	.045 (.082)	.024 (.084)	.015 (.09)
Size		.18** (.088)	.144 (.095)	.133 (.1)	.07 (.118)
Log of Employees		.616*** (.158)	.512*** (.19)	.59*** (.158)	.441** (.204)
Log of Employees ²		-.032*** (.009)	-.026** (.011)	-.029*** (.01)	-.019 (.013)
Log of Leverage		.069 (.093)	.016 (.094)	.049 (.095)	.003 (.096)
ROA (t-1)		.012 (.009)	.005 (.01)	.015 (.009)	.007 (.009)
Lagged variable	dependent	YES	YES	YES	YES

Country dummies	NO	YES	NO	YES
Sectoral dummies	NO	NO	YES	YES
Constant	-8.65*** (1.861)	-7.917*** (2.005)	-8.239*** (2.062)	-7.003*** (2.381)
Observations	131	131	131	131
R-squared	.126	.162	.147	.188

*Engagement Intensity Score and ESG Controversies Score. This regression shows an OLS cross-sectional analysis. The dependent variable is the Engagement Intensity Score. The main explicative variables are the ESG Controversy Score at time 2021, and the ESG Controversy Score at time 2011. Standard errors are in parentheses. ***, ** and * denotes significance at the 1%, 5% and 10% level respectively.*

Section 5.2. Logit and Probit Analysis

Table 8 shows the descriptive statistics for accounting variables employed in the model specification for the second research hypothesis (H_1).

Tab.8 - Descriptive statistics for control variables

Variable	Min	Max	Mean	Median	Std. deviation
Total Asset	4.00	1,075,678.000	40,267,617.00	16,725,227.00	80,420,889.00
Total Debt/Enterprise Value (Leverage)	-4.00	13.00	0.36	0.32	0.34
Employees	2.00	30,484,325.000	113,975.00	19,494.00	1,183,514.00
ROA (t-1)	-133,862.00	158.00	-21.00	4.00	1,831.00

As showed in Table 9, the probability of successful Engagement is confirmed by the positive coefficient of the ESG Score. A positive relationship means that a higher probability of engagement is associated with a higher level of sustainability. On the other hand, if we take the fixed effect of ESG Score at 2011 a higher probability of engagement is associated with a lower level of sustainability. The relationship between the Dummy Engagement Score and the ESG Score referring to 2011, is always

negative and significant up to 1%. Specifically, findings show that in the short term as the ESG Score increases the likelihood that a firm involves in engagement activities growth of 2.7% (column 3). While, as we consider a long-lasting ESG approach (ESG Score of 2011) the likelihood decreases of 0.63%. Among the control variables we observe a greater likelihood of involvement in engagement activities in front of an increase in the Size, Leverage and firm's Return on Assets (ROA) one year lagged. We may argue that this negative result confirms the existence of a convergence in the terms seen at the first step of analysis, as well as f the ESG Score toward the Engagement Score.

Tab. 9: Dummy Engagement and ESG Score – Logit

Dependent variable: Dummy Engagement			
	(1)	(2)	(3)
ESG Score (t-1)	2.38*** (.5)	2.548*** (.522)	2.686*** (.54)
ESG Score (2011)	-.739*** (.243)	-.678*** (.245)	-.628** (.249)
ROA (t-1)	.055*** (.014)	.056*** (.014)	.058*** (.014)
Size	3.128* (1.863)	2.994 (1.872)	2.274 (1.907)
Size^2	-.072 (.052)	-.068 (.053)	-.048 (.054)
Leverage	.272** (.128)	.277** (.129)	.243* (.133)
Dummy Continent	NO	YES	YES
Sectoral Dummy	YES	NO	YES (.227)
_cons	-43.071*** (16.474)	-42.544*** (16.505)	-36.928** (16.712)
Observations	4082	4082	4082

*The regression shows a Logit model where the dependent variable is a Dummy Engagement that assumes value 1 for those companies that had an Engagement Activity in 2022 as identified by Climate Action 100+, and 0 otherwise. Standard errors are in parentheses; ***, ** and * denotes significance at the 1%, 5% and 10% level respectively.*

Results for probit analysis are shown in Table 10. These substantially confirm logit evidence. Specifically, the ESG score influences positively and significantly until 1%. While a long-lasting ESG approach significantly reduces the likelihood of engagement activities (p-value<0.05). Comparing results outlined in table 9, among the control variables the measure of the Size is no longer significant. To

conclude, we may argue again the standing point of a convergence of the ESG score towards Engagement activities over the long time is confirmed.

Tab. 10: Dummy Engagement and ESG Score – Probit

Dependent variable: Dummy Engagement			
	(1)	(2)	(3)
ESG Score (t-1)	1.061*** (.227)	1.171*** (.239)	1.228*** (.247)
ESG Score (2011)	-.304** (.121)	-.279** (.122)	-.263** (.125)
ROA (t-1)	.03*** (.007)	.032*** (.008)	.032*** (.008)
Size	.459 (.774)	.513 (.792)	.338 (.797)
Size^2	-.007 (.022)	-.008 (.022)	-.003 (.023)
Leverage	.117** (.056)	.123** (.057)	.108* (.059)
Dummy Continent	NO	YES	YES
Sectoral Dummy	NO	NO	YES
_cons	-11.563* (6.761)	-12.536* (6.91)	-11.3 (6.928)
Observations	4045	4045	4045

*The regression shows a Probit model where the dependent variable is a Dummy Engagement that assumes value 1 for those companies that had an Engagement Activity in 2022 as identified by Climate Action 100+, and 0 otherwise. Standard errors are in parentheses; ***, ** and * denotes significance at the 1%, 5% and 10% level respectively.*

Section 6. Conclusions

The aim of this study is to explore the intricate relationship between sustainability performance and firms' engagement activities, particularly within high-intensity emissions companies involved in the Climate Action 100+ Initiative. Climate Action 100+ initiative assumes a substantial role in pushing enterprises towards more sustainable practices. By instilling a sense of peer influence, providing explicit guidance, fostering knowledge exchange, and influencing market perceptions, these initiatives are instrumental in encouraging businesses to espouse environmentally responsible conduct, thereby contributing to a more sustainable future. With the escalating urgency of climate change, the pivotal role of private initiatives as catalysts for transformative change is poised to intensify further.

Our study concentrated on environmental engagement and sought to unravel the potential link between a firm's involvement in environmental concerns and its sustainability performance, as measured by the Environmental, Social, and Governance (ESG) score.

Drawing upon Schelling's theoretical framework (1960), we argue of a gradual convergence of sustainability performance towards a focal point represented by engagement intensity in environmental activities. The findings of this study support the initial hypothesis: Companies with historically lower ESG scores appear more inclined to hasten their progress towards a central point delineated by engagement activities. In order to explore whether existed a sustainability path, we employ an OLS multivariate analysis considered a cross sectional sample of 162 listed companies globally distributed which operate in those sectors mainly contributing to a high level of emissions. Evidence confirms our research hypothesis of a long-lasting sustainable approach convergence towards engagement activities, captured by the change in the sign of the ESG Score coefficient provided by Thomson Reuters between the two observations periods (i.e. 2021 and 20211).

In particular, we outline that for a 10% increase in the Log ESG Score at 2021, the Engagement Intensity Score increases of 0.81. On the other side, when the Log ESG Score at 2011 increases by 10%, the dependent variable decreases with values between 0.57 and 0.41. Additionally, we provide a robustness analysis using the Bloomberg ESG Overall Score confirming the existence of a convergence. The loose of significance as we selected for analysis Bloomberg ESG Score finds an explanation into the huge heterogeneity in ESG Score definitions and indicators underlying methodologies among the rating agencies. The Bloomberg ESG methodology's focus on environmental issues probably explains the low significance compared to results outlined with ESG score provided by Thomson Reuters.

Moreover, empirical evidence highlights the increasing relevance of reputational issues. In fact, as we consider the ESG Controversies Score, a significant relationship between the Log of Engagement Intensity Score and the Log of ESG Controversies Score at time 2021 is confirmed. Along to this evidence, a valid explanation into the growing attention to the reputational issues can be found. Hence,

from a quantitative perspective, an increase of 10% of the Log ESG Controversies Score, is associated with an increase of the Engagement Intensity Score by approximately 0.23, with a statistical significance until 1% ($p\text{-value} < 0.001$).

The research question, rooted in the growing significance of ESG scores, both among scholars and practitioners, reveals a transformative shift in corporate behavior over time. The study empirically illustrates this transformation, showcasing a shift in the relationship between ESG scores and engagement activities. Businesses are increasingly aligning their ESG initiatives with their engagement strategies, indicating a maturation process where ESG ratings are steadily converging towards a central focal point represented by engagement activities.

To strength our evidence we also employ a Peer analysis using logit and probit models in order to investigate on those variables which could mainly contribute to engage companies in sustainable activities. Our results confirm the hypothesis of convergence pointing out a lower likelihood of involvement into environmental engagement activities for those companies characterized by a long lasting ESG approach. Specifically, the likelihood decreased of 0.63% and 0.26% for logit and probit model with a statistic significance until 1% ($p\text{-value} < 0.001$).

The confirmed alignment signifies a notable evolution in corporate priorities, highlighting the critical role that ESG scores play in shaping business operations. The paper provides empirical evidence for this intriguing development, contributing to the broader understanding of the dynamic interplay between sustainability performance and engagement activities.

One notable constraint within this research lies in its dependence on a novel dataset, which inherently carries the characteristic of being recently acquired. This temporally constrained nature of the data sample poses challenges to the depth and historical context of the analysis. To address this limitation, it is imperative to emphasize the ongoing monitoring of the data. The dynamic nature of the dataset requires vigilant observation and scrutiny to capture any emerging trends or changes over time.

Continuous monitoring serves as a mechanism to adapt and refine the dataset, mitigating the inherent limitations associated with the recency of the information.

Despite the current constraint, there is an optimistic outlook for the future of the study. Through vigilant and continuous monitoring, there is an expectation that the dataset will gradually mature encompassing a longer period of time, allowing for the accumulation of additional data points and the subsequent enrichment of the sample. This, in turn, will bolster the robustness and completeness of the analyses conducted within the framework of this study. Along this line, in our pursuit of a comprehensive understanding of sustainability practices, we would like to go beyond utilizing ESG data solely from Refinitiv. The integration of other data providers would add depth to our analyses, contributing to a more holistic perspective on the sustainability landscape within companies.

As we move forward, the insights gleaned from this research could inform strategic decision-making for companies seeking to enhance their sustainability practices. Moreover, a critical aspect of this study, that may be object of future research, is understanding how the insights gained can be translated into actions that contribute to the reduction of the cost of capital. By elucidating the connection between sustainable practices and financial outcomes, companies can make informed decisions that positively impact their bottom line. The evolving landscape of ESG considerations and engagement activities underscores the need for businesses to continually adapt and align with emerging expectations, both from societal stakeholders and within the corporate sphere.

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