

Beyond ESG Disclosures: Rethinking Impact Measurement in Sustainable Investing

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ABSTRACT

ESG investing has quickly established itself as a mainstream strategy in international financial markets as opposed to a niche strategy. Its validity is increasingly being questioned following the intensive use of corporate self-disclosures, uneven reporting guidelines and a lack of demonstration of practical implementation. This paper critically analyses ESG investing by assessing whether ESG measures truly reflect sustainable and socially responsible results or are a mere corporate story. The study determines the gap between reported ESG scores and actual environmental and social impact with the help of quantitative analytical framework. Analysis of primary quantitative data from ESG and investment professionals is performed to determine gaps, biases and inconsistency in rating. Results indicate major discrepancies between the reported ESG performance and the actual impact which indicate the existence of symbolic compliance and selective disclosure. The paper claims that the existing ESG models do not adequately address long-term sustainability metrics and omit the externalities on stakeholders and ecosystems. Through the suggestion of the impact-based evaluation methodology incorporating outcome-based measurement and third-party verification, this study will help enhance the credibility of ESG assessment. The article has implication for investors, regulators and policymakers to enhance the level of ESG transparency, accountability and capital allocation efficiency in sustainable finance.

Keywords: ESG Investing, Sustainable Finance, Impact Measurement, Corporate Disclosures, Greenwashing, Responsible Investment, ESG Ratings, Stakeholder Accountability.

Introduction

The concept of Environmental, Social and Governance (ESG) investing has become one of the most powerful trends that are transforming the modern financial market due to the increasing interest in climate change, social inequality, corporate responsibility and economic sustainability in the long term. What started as a values-based filtering model has evolved as a dominant investment model that institutional portfolios, sovereign wealth funds and pension funds, as well as retail investors, utilize. ESG factors have indeed become systematically incorporated into risk analysis, capital budgeting and the process of corporate valuation, with a common belief that the existence of better ESG performance, is an indication of higher levels of governance, reduced risk profile and long-term sustainable returns. ESG institutional legitimacy has been increased with regulatory initiatives like compulsory sustainability reporting and disclosures of climate risks. Nonetheless, the mainstreaming of ESG investing that has occurred rapidly has brought to light inherent structural frailties in the definitions, measurement and interpretation of sustainability performance. The majority of ESG ratings are based on corporate voluntary sustainability reports, self-reported disclosures and the standardized questionnaires which differ greatly in their scope, quality and transparency.

There has been no standardization of global reporting guidelines and this has created disjointed information, methodological obscurity and irregularities in the ESG ratings between agencies. As a result, ESG scores are frequently awarded to firms that have good disclosure practices but not necessarily have impactful environmental or social practices, which is a cause of concern since ESG investing can be seen to focus on the level of reporting, rather than the actual change. With the current trend in ESG assets expanding at an unparalleled rate, the question of whether ESG investing is indeed providing tangible societal and environmental results, or whether it is the same approach to investment under a new sustainability brand has escalated into debate. Critics state that the existing ESG system encourages token company adherence, partial reporting and reputational risk management over operational change. Several studies indicate weak relationships between ESG ratings and actual impact measures of decreasing carbon intensity, bettering labor welfare, or outcome on the community scale. Further, the fact that ESG ratings issued by various agencies differ discourages investor confidence and makes it difficult to make informed decisions because the same firms can be scored very differently by different rating agencies based on the methodology it uses. This implication indicates that the ESG measures could be more of a subjective weighting structure and data accessibility as opposed to actual performance. The increasing popularity of greenwashing has also weakened the credibility since businesses are noisy when emphasizing advantageous aspects of the ESG and silence bad externalities. Here, ESG investing is at a very difficult crossroads: in the absence of well-developed tools of monitoring results outside corporate disclosed information, its potential as an engine of sustainable development turns into a performance and not a transformation. The current paper is a response to this challenge in that it critically explores the shortcomings of using disclosure based ESG frameworks and underlines the necessity of impact based measurement strategies. The research aims to add to a more plausible, responsible and outcome-focused ESG investment paradigm by relocating the analytical emphasis on reported intentions and policies to the environmental and social outcomes that can be seen thus improving the alignment between financial markets and sustainability goals.

Literature Review

- **Evolution of ESG Investing and the Rise of Disclosure-Based Frameworks**

The scholarly field on ESG investing notes that it has changed over time to an ethical exclusionary screening to an element of the modern portfolio management tool [1]. Initial research on the nature of socially responsible investing (SRI) was based on moral alignment and not financial performance. Gradually, ESG investing has evolved into a risk-adjusted investment policy, with researchers maintaining that ESG variables give material data regarding the durability of firms in the long-run, quality of governance and vulnerability to non-financial hazards [2]. This shift has been accompanied by an increasing regulatory pressure and demand of transparency by stakeholders, resulting in the prevalence of sustainability reporting models and ESG reporting standards [4]. Therefore, the measurement of ESG performance has been increasingly done in the form of organized corporate disclosures, sustainability reports and the third-party rating systems. Nonetheless, this disclosure-based model is becoming more and more criticized in literature. Some of the studies contend that the ESG ratings are more of a reflection of the reporting level as opposed to the quality or effectiveness of the practice of sustainability [5]. Companies that are better reporting, investor relations staff, or those that can access sustainability consultants are likely to score higher, whether they achieve better environmental or social results or not. Disclosure bias has been recognized as one of the structural weaknesses where voluntary reporting is used to portray biased information by firms favorable to them without including material adverse effects [6]. The situation is enhanced by the absence of standardized, compulsory, global reporting standards on ESG, which leads to dislocation and incomparability between different jurisdictions and industries. The current empirical studies support these issues by revealing that ESG disclosure scores have poor correlations with actual sustainability performance [7]. Research on carbon emissions, workplace safety, labor standards and community impact tend to discover that although a rise in ESG scores might not automatically yield quantifiable outcomes regarding reduction of environmental degradation or social risk [8]. This has seen increased doubts as to whether ESG investing, as it is being practiced, actually moves capital to more sustainable companies or is simply a rewarding practice of more constructive disclosure [9]. Consequently, there is a growing consideration in literature that ESG models should be revisited to emphasis more on metrics related to transparency more than the outcome-based performance measures [3].

- **ESG Ratings, Methodological Divergence and Credibility Challenges**

There is a large amount of literature on ESG rating agencies and the methodological issues inherent in the ESG scoring systems. It is always recorded in researchers that there is enormous disparity between ESG ratings given by various agencies even when evaluating the same firm over the same duration. Such a deviation is explained by the differences in data sources, measures chosen, weighting schemes and techniques of aggregation. Other studies have pointed out that the correlation between various large ESG ratings is significantly less than that of the traditional credit ratings and this raises issues in reliability and interpretation by investors [10]. Researchers suggest that ESG ratings are also subjective in nature and are based on normative decisions of what is good environmental, social or governance practices. Such subjectivity is problematic in cases where the ESG scores are perceived as objective indicators of sustainability impact. Evidence indicates that the indicators of governance tend to dominate the ESG scores because of their availability and quantifiability, whereas there is underweighting or poor representation of the environmental and social aspects, especially in respect to the externalities. Consequently, companies can score highly on the overall ESG rating even though they can have a profound environmental and social negative impact. The structural conflicts of interest in the ESG ratings ecosystem are also mentioned in the literature. Many rating agencies use data presented by issuers, voluntary disclosures and paid advisory services, this could be a barrier to independence. Also, the constant updating of ESG processes causes temporal volatility and longitudinal analysis becomes challenging [11]. Such issues of credibility compromise investor confidence and reduce the utility of ESG ratings in an impactful investment. As a result, a number of researchers suggest that ESG ratings cannot be viewed as indicators of actual influence but instead as indicators of risk exposure, transparency, or alignment between governments [12]. The accumulation of such criticism has redirected the academic discussion on the essence of the ESG ratings. ESG scores are becoming rather reputational metrics in financial markets, as opposed to being proxies of sustainability outcomes. This has led to the demand that more transparency be provided on ESG methodologies and that there be a distinction between the risk-based ESG ratings and the impact-based sustainability rating [13].

- **Measuring Impact Beyond Disclosures: Toward Outcome-Based ESG Assessment**

A new body of literature is championing the idea that it is time to transition off disclosure-based ESG models to impact-based measurement models. The scholars stress that the process of real sustainability evaluation should be based on the visible results of the process instead of on the policies or commitments and intentions. This view falls in line with impact investing studies which focus more on quantitative environmental and social improvement in addition to financial gain. In this research area, it is also suggested to incorporate outcome-based indicators, including emissions intensity, resource effectiveness, employee well-being metrics and impacts on communities in ESG assessment frameworks. Third-party verification, independent audits and alternative data sources to lessen the use of corporate self-reporting is also proposed in literature. Satellite data, supply chain analytics, government databases and NGO reports are gaining more and more popularity as a useful instrument of evaluating the real impact. Such strategies allow investors to identify the differences between the reported ESG stories and the real performance of the operations [14]. The academics believe that the inclusion of such data could enhance the validity and responsibility of the ESG measurements to a large extent. Besides, the literature highlights the role of the regulators and standard-setting organizations in enhancing impact-based ESG measurement. The existence of mandatory reporting compulsories, standardized measures of impact and enforcement mechanisms are considered necessary to put a stop to greenwashing and to make firms and sectors comparable with each other. Unless regulated, voluntary disclosure regimes will not provide significant change. Taken together, the above accumulation of literature implies that ESG investing has to change its paradigm, transforming the quantification of what companies claim to be doing to assessing what companies actually do [15]. Incorporating the outcome-based metrics into the ESG models, the research and practice in the future will be closer to aligning capital markets with real sustainability goals and long-term societal value-generating.

Methodology

In this study, a primary quantitative research design is implemented to look into the effectiveness of the ESG impact measurement outside corporate disclosures. A survey questionnaire was used to collect primary data with a structured survey questionnaire that was given to professionals working in ESG and sustainable investing. The target market was portfolio managers, ESG research analysts, risk managers, financial advisors and other professionals in the asset management companies,

pension funds, banks, ESG rating agencies and consulting firms. A total of 100 responses were initially collected. Out of these 90 valid responses were used for final analysis after data cleaning and removing incomplete responses. The final sample size was sufficient for running multivariate statistical tests like factor analysis and regression. The questionnaire was drafted on a five-point Likert scale with strongly disagree (1) to strongly agree (5). The research tool was divided into three parts: demographic data, independent variables and dependent variables. The independent variables were structured around three constructs, which include; Alternative Data Sources, Stakeholder Verification and Standardized Frameworks and had a total of nine items. ESG Impact Measurement Effectiveness was the dependent variable that was measured by three items that tested the confidence and capacity of the respondents to appraise the actual ESG impact in the world beyond the corporate disclosures. The IBM SPSS was used in data analysis where descriptive statistics, reliability analysis, factor analysis, correlation analysis and multiple regression tests were used to test the relationship between variables.

Findings and Analysis

Demographic Analysis

- **Primary Role**

The demographic report shows that the respondents were distributed across ESG-related professional roles. Most of the respondents were portfolio managers or investment analysts, followed by ESG research analysts and risk managers. The respondents who are financial advisors as well as those in other related jobs formed a smaller but significant group. This distribution implies that the data is based on the opinions of both decision-makers and evaluators in the ESG investment ecosystem, which increases the relevance and practical significance of the results.

Table 1: Primary Role
Role

	Frequency	Percent	Valid Percent	Cumulative Percent
ESG Research Analyst	20	22.2	22.2	22.2
Financial Advisor	14	15.6	15.6	37.8
Other	5	5.6	5.6	43.3
Valid Portfolio Manager/Investment Analyst	30	33.3	33.3	76.7
Risk Manager	21	23.3	23.3	100.0
Total	90	100.0	100.0	

Source: IBM SPSS

- **Experience**

The Professional experience analysis reveals that a majority of the respondents had between 2 and 10 years of experience in ESG or sustainable investing, while a smaller portion of respondents had over 10 years of experience. This means that the respondents were experienced enough to make informed judgments as well as reflecting the current ESG practices that were influenced by recent market and regulatory developments.

Table 2: Experience**Experience**

	Frequency	Percent	Valid Percent	Cumulative Percent
2-5 years	28	31.1	31.1	31.1
6-10 years	30	33.3	33.3	64.4
Valid Less than 2 years	17	18.9	18.9	83.3
More than 10 years	15	16.7	16.7	100.0
Total	90	100.0	100.0	

Source: IBM SPSS

- Type of Organization**

These respondents were mainly drawn from asset management firms and pension funds, while banking and financial institutions had the second largest number of respondents. The fact that respondents are representatives of ESG rating agencies gives the study credibility since these individuals are the ones directly involved in the process of ESG data assessment and scoring.

Table 3: Type of Organisation**Organization**

	Frequency	Percent	Valid Percent	Cumulative Percent
Asset Management Firm	28	31.1	31.1	31.1
Banking/Financial Institution	17	18.9	18.9	50.0
Valid Consulting Firm	10	11.1	11.1	61.1
ESG Rating Agency	7	7.8	7.8	68.9
Pension Fund	28	31.1	31.1	100.0
Total	90	100.0	100.0	

Source: IBM SPSS

- Reliability Test**

The Cronbach's alpha value of 0.767 is greater than acceptable value which is 0.70 indicating that the measurement scale has high internal consistency and reliability. The reliability findings show that the items in the structured questionnaire consistently measure the desired constructs which confirms the usage of questionnaire to conduct further statistical analysis.

Table 4: Reliability Test**Reliability Statistics**

Cronbach's Alpha	N of Items
0.767	12

Source: IBM SPSS

- Descriptive Analysis**

According to the descriptive statistics, it can be noted that the respondents tended to agree with the statements concerning alternative data sources, stakeholder verification and standardized ESG frameworks. Most items in the category had mean values higher than the middle, which shows that there is a positive perception of outcome-based and externally validated ESG measurement methods. This is an indication of an increasing disappointment with the use of corporate disclosures.

Table 5: Descriptive Analysis

Descriptive Statistics			
	N	Mean	Std. Deviation
IV1_Alternative_Data_Sources	90	12.1667	1.60232
IV2_Stakeholder_Verification	90	12.0444	1.59290
IV3_Standardized_Frameworks	90	12.0222	1.46094
DV_ESG_Impact_Measurement_Effectiveness	90	12.9222	1.27401
Valid N (listwise)	90		

Source: IBM SPSS

• **KMO and Bartlett's Test (Factorial Analysis)**

Sampling adequacy was established as the Kaiser Meyer-Olkin (KMO) measure was more than 0.60 which is the advisable value. The Test of Sphericity by Bartlett was significant and this meant that variables had enough correlations to get factor analysis. Factor extraction also justified the idea of the existence of significant conceptual dimensions that were associated with the variable structure proposed in the research.

Table 6: Factorial Analysis

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.753
Approx. Chi-Square		737.702
Bartlett's Test of Sphericity	df	66
	Sig.	0.000

(Source: IBM SPSS)

Correlation Analysis

The analysis of correlation has shown that the relationships between all independent variables and ESG Impact Measurement Effectiveness are positive and statistically significant. Alternative data sources, Stakeholder verification and standardized frameworks are positively associated with higher ESG impact measurement effectiveness, indicating that credibility, external validation and structured ESG assessment mechanisms contribute to improved ESG impact evaluation.

Table 7: Correlation Analysis

Correlations				
	IV1_Alternative _Data_Sources	IV2_Stakehold er_Verification	IV3_Standardiz ed_Frameworks	DV_ESG_Impact_Meas urement_Effectiveness
Pears on Corre lation IV1_Alternative_Data Sources	1	.173	-.107	.414**
Sig. (2- tailed) N	90	.103	.315	.000
Pears on Corre lation IV2_Stakeholder_Verifi cation	.173	1	-.208*	.290**
Sig. (2- tailed) N	90	.103	.049	.006
Pears on Corre lation IV3_Standardized Fram eworks	-.107	-.208*	1	.212*
Sig. (2- tailed) N	90	.315	.049	.045
	90	90	90	90

Source: IBM SPSS

Regression Analysis

The results of multiple regression suggest that all three independent variables play an important role in measuring the effectiveness of ESG impact. Of them, alternative data sources appeared as the most influential factor followed by standardized frameworks and stakeholder verification mechanisms. The framework accounts for a significant amount of variation in the dependent variable, which proves the strength of the suggested framework. The results also point out that ESG impact measurement can be enhanced best with the help of mandatory standards, verification tools and objective data integration.

Model Summary						
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate		
1	0.561 ^a	0.314	0.290	1.07327		
a. Predictors: (Constant), IV3_Standardized_Frameworks, IV1_Alternative_Data_Sources, IV2_Stakeholder_Verification						
ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	45.391	3	15.130	13.135	0.000 ^b
	Residual	99.065	86	1.152		
	Total	144.456	89			
a. Dependent Variable: DV_ESG_Impact_Measurement_Effectiveness						
b. Predictors: (Constant), IV3_Standardized_Frameworks, IV1_Alternative_Data_Sources, IV2_Stakeholder_Verification						
Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.020	1.647		1.834	0.070
	IV1_Alternative_Data_Sources	.316	.072	.398	4.376	0.000
	IV2_Stakeholder_Verification	.229	.074	.286	3.096	0.003
	IV3_Standardized_Frameworks	.274	.080	.314	3.434	0.001
a. Dependent Variable: DV_ESG_Impact_Measurement_Effectiveness						

Table 8: Regression Analysis

Source: IBM SPSS

Discussion

The results of this research give an empirical evidence to the emerging scholarly criticism of disclosure-based ESG investing. The existence of positive and significant relationships between alternative data sources, stakeholder verification, standardized frameworks and ESG impact measurement effectiveness is a pointer of increasing awareness of investors and ESG professionals that the use of corporate self-reported information is limited. These findings support that outdated ESG reporting, with a heavy emphasis on narrative reports and policy pronouncements, does not reflect a sufficient real-life environmental and social performance. The high average scores in the independent variables indicate that practitioners generally agree on the need to use more objective, externally validated and outcome-focused measurement scales in order to have credible ESG impact assessment. The high impact of the alternative data sources on the effectiveness of the measurement of the ESG impact is characterized by the increased relevance of technology-enabled and non-traditional data in sustainable finance. The agreement of the respondents with the idea that satellite imagery, real-time monitoring and third-party data can help to enhance the accuracy of ESG assessment is consistent with the previous studies that have highlighted data innovation as a way of solving disclosure bias and greenwashing.

Nonetheless, the regression coefficient of alternative data is relatively strong, which implies that although alternative data will increase the accuracy, it will not be adequate to determine credibility. This means that sophisticated data instruments should be supplemented by institutional systems, which would guarantee transparency, consistency of interpretation and responsibility. In the absence of decent verification and governance designs, alternative data is likely to be an additional layer of technology without a significant increase in trust in ESG outcomes. Stakeholder verification was also found to be a robust and statistically significant predictor of measured effectiveness of ESG impact, highlighting the importance of human and social validation in measuring sustainability assessment.

The results imply that first-hand feedback of the employees, communities and concerned parties has a huge confidence-building impact on the ESG assessments. This justifies the stakeholder theory that holds that the performance of firms should be measured by the wider implications on the society instead of relying on the shareholder metrics. It was seen as critical that independent audits and cross-checking of various sources of data would determine inconsistencies between the corporate assertions and the actual performance. These findings underscore the fact that the ESG credibility issue is not purely a data challenge, but also a governance and accountability challenge, which entails the need to employ mechanisms to decrease information asymmetry and discretion in the management of sustainability reporting.

Standardized ESG frameworks emerged as significant factors affecting the effectiveness of measuring ESG impact, which means that practitioners favor a more standardized and harmonized ESG reporting frameworks. The significance of this dimension implies that voluntary disclosure systems are not sufficient to enforce and compare disclosed information in order to facilitate impact-based investment decisions. The shift towards quantifiable measures of impact, as opposed to qualitative stories, by the respondents is a sign of the increasing frustrations with symbolic compliance and inconsistent ESG meanings across markets. The finding is consistent with new regulatory trends to have standardized sustainability disclosures to enhance comparability, lessen greenwashing and enhance investor confidence. Notably, the significance of standardized models under the regression model suggests that market-driven solutions alone may not be sufficient to provide meaningful ESG measurement without standardized assessment mechanisms. Taken together, the findings are indicative of the fact that ESG investing is in a critical transition phase. Measuring the impact of ESG may be effective not through increasing the volume of disclosure but by converting the definition and validation and regulation of impact.

The research study has added to the body of literature since it empirically evidentiates that the presence of outcome-based measurement, stakeholder validation and standardized ESG frameworks result in increased ESG credibility. These lessons have implications on the practical interests of investors, ESG rating agencies and policymakers in need of refocusing sustainable finance on realistic environmental and social goals. When ESG investing is prioritized in terms of outcomes instead of company or corporate narratives, it will move beyond performative disclosure toward substantive and responsible impact creation.

Conclusion

This paper has critically analyzed ESG investing by assessing the effectiveness of impact measurement techniques beyond corporate disclosures. The study is based on primary quantitative data of Ninety ESG and investment professionals. It has revealed that the use of self-reported corporate ESG information is generally viewed as limited in reflecting the real-world environmental and social performance. The results of the empirical evidence support the view that alternative sources of data, stakeholder verification procedures and standardized ESG frameworks are very effective in the measurement of ESG impact. Among them, alternative data sources emerged as the most influential factor followed by standardized frameworks and stakeholder verification mechanisms. The research contributes to ESG literature in its empirical support of the change in the disclosure-based assessment to the outcome-oriented measurement. It points out that credibility in ESG reporting is not based on the amount of information, but objectivity, verification and comparability of impact measures. These results have valuable implications to investors, ESG rating agencies and policymakers who want to enhance the efficiency of capital allocation and reduce greenwashing practices. The focus on measurable outcomes, the ability to validate results independently and standardized ESG frameworks make the research even more persuasive about the necessity to redefine ESG investing as the mechanism of producing a real sustainability impact instead of reputational signaling.

Future Scope

This study has numerous ways in which future research can be furthered. First, it would be possible to compare the practices of measuring the impact of ESG by increasing the number of countries and regulatory environments, which would make the practices more generalizable. Second, longitudinal research might focus on the effect of standardized frameworks and other forms of data adoption on ESG impact credibility over a period of time. Third, work in the future can combine objective secondary information (e.g. emissions intensity, labor safety records, or satellite-based environmental indicators) to make survey-based perceptions and actual performance results more consistent. Also, industry-specific studies may be made to reveal industry-level differences in the effectiveness of ESG measurements. Lastly, qualitative research such as interviews with experts and case studies can be used to gain more detailed information about institutional obstacles and execution difficulties and gain a more comprehensive perspective of how ESG investing can leave the stage of compliance disclosures and enter the stage of a quantifiable, responsible impact generation.

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