Calculating the Incalculable: Sustainable Investing and Innovations in Measuring ESG Parameters

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***Abstract*: The world is changing and so is the environment that exists. If one looks over the past two decades the environment has drastically changed and has deteriorated to an extent that it requires a solution faster and sooner than expected. This has also created a lot of pressure on corporations and companies to be at their best and make policies that are sustainable in nature not just environmentally but socially as well. While most corporates are trying to find a balance between profitability and sustainability, in recent times, the investor community has also started demanding answers to the companies. This has given rise to responsible investing- where factors such as environmental, social and governance (ESG) are integrated into investment processes. While these words may be commonly used across the board, they cover a broader scope and spectrum of factors and issues which were conventionally used as a parameter of investing. ESG investing makes fund managers look beyond balance sheets and financial analysis in a way that it still makes financial relevance. This could include parameters as to how does a company manages its water resources, does it have effective health and safety policy or how does it draft its activities which are friendly to the environment and responsive to climate change. For fund managers, while these issues are worth considering, these factors are highly subjective and calculating the actual impact is quite difficult. A lot of rating agencies have tried to mitigate this subjectivity by introducing various ratings and metrics that are supposed to make the task easier for a fund manager to evaluate his or her investment based on ESG factors of sustainability. But instead of easing out, these ratings have often turned out confusing and also quite varying from agency to agency leaving the fund managers in dilemma as to which rating is closer to reality. This subjective terms of ESG calculations and confusing maze of rating has lead innovation to come to the rescue. A lot of companies today are using innovative methods to fill the gaps of ambiguity which range from big data, data analysis to as unique as geospatial analysis thus promising a better and more sustainable future for investing.**

***Keywords*: ESG, investments, ESG Ratings, Sustainability, Innovation**

The Rise of ESG or Sustainable Investing

It was the start of the new millennium when the world slowly started feeling the heat (literally), and the realization towards bringing in policies, frameworks and business models that would more sustainable in nature started buzzing in the corporate corridors. While businesses were still trying to balance 'profitability' and 'sustainability', stakeholders started building in weights on side of sustainability over profitability.

The first glimpse of sustainability investing was put forward by the then Secretary-General Kofi Annan who in January 2004 wrote an elaborate letter and called for action to the CEOs of significant financial corporations on Wall Street and institutional investors to take part and bring together environmental, social and corporate governance (ESG) factors into their investment activities. He called in action on an assortment of issues that involved but weren't limited to making investment decisions, active ownership, clarity, transparency, collaboration and acquiring wider support for these ESG factors and practices from the global financial services industry. A year later the same thoughts were echoed in a report that was inspired by Mr. Annan's letter that was titled "Who Cares Wins". The report made a strong business case that embedded that ESG factors in capital markets were making a great sense and was leading to markets that were more sustainable and had other beneficial outcomes for the society they operate in. While the investor community was grasping the finer granularities of this report, UNEP's s financial initiative came up with another report which spelled out the probable legal and compliance framework for the amalgamation of Environmental, Social and Governance issues into institutional investment.

These three mentioned documents- the Kofi Annan, the Who Cares Wins Report and the third UNEP financial initiative- laid the emphasis and went on to become the cornerstone documents which lead to the introduction of the Principles for Responsible Investment (PRI) at the NYSE (New York Stock Exchange) in 2006 and also the formation of Sustainable Stock Exchange Initiative (SSEI) in 2007. While the start of this historic movement was minuscule and niche, it has rapidly grown leaps and bounds over the past fifteen odd years.

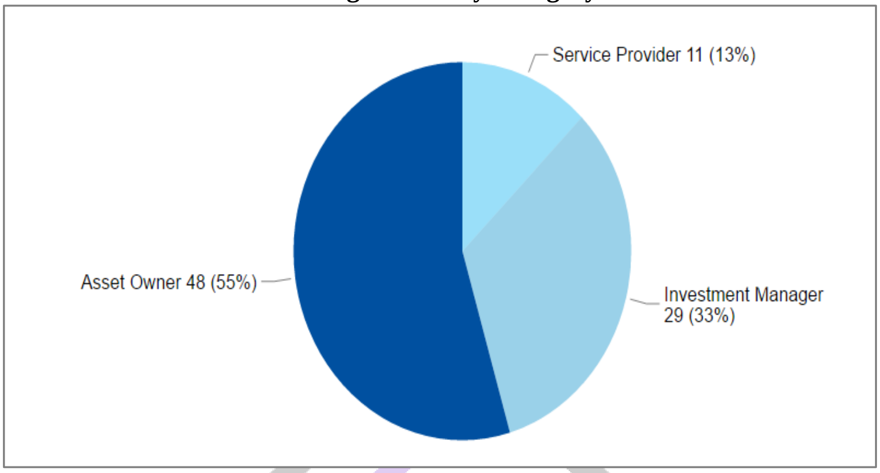
While the PRI were guidelines for a better future, their adoption had a domino effect where peer adoption propelled a global momentum. The primary driver's adoption of PRI could be listed as

1. Acknowledgment in the financial community and wider stakeholder communities which believe and expect ESG factors could playout a material role in shaping risk and return and had a wider look at factors that were beyond numbers.
2. Attempts to make ESG factors a part of fiduciary duties of the companies and government

3. Equited concern about short term profits to long term damages
4. Peer pressure from competitors seeking to stand out from the crowd by offering sustainable investment options
5. Long term reputation risk and erosion of goodwill

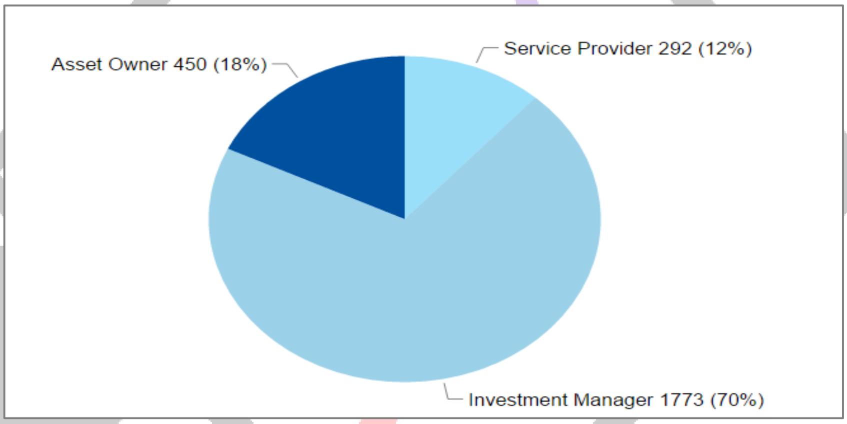
Sustainable Investing or ESG Investing is now mainstream and has been enlarging, it’s something investors now cannot turn a blind eye on. The number of Signatories to the PRI was 88 in 2006 has now grown to over 2600 participants.

Number of Signatories by Category in 2006



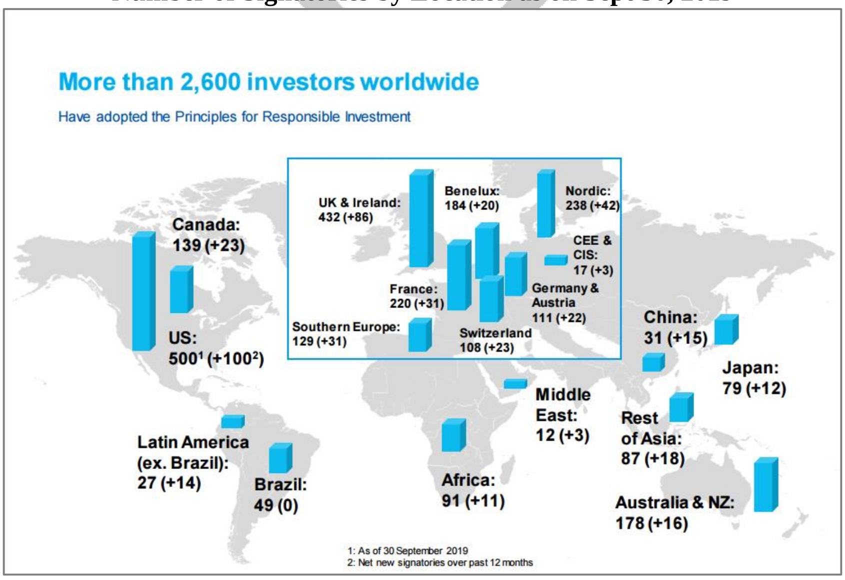
Source: United Nations PRI Portal

Number of Signatories by Category in 2019 (up to Sept 30)



Source: United Nations PRI Portal

Number of Signatories by Location as on Sept 30, 2019



Source: United Nations PRI Portal

Increased Investment Asks for ESG Ratings

With rising awareness and increasing demand for sustainable investing, fund managers and asset owners across the globe are demanding companies to take account of their ESG parameters. While most companies may adhere to their responsibilities towards ESG factors, there is always a check require to measure their fulfillment. This requirement has given rise to ESG reports and ratings and a lot of traditional rating agencies, financial data providers and third-party providers have started providing independent analysis how does a company fair on its non-financial criteria that circle around the environment, social and governance factors.

Following the rising demand from the investing community most international and domestic companies at least in the developed countries are being evaluated and rated by these providers. Institutions, domestic or international, that invest, owners of assets, managers of leading institutions and other market participants are increasingly trusting the reports and ratings provided by these rating agencies and are, now, evaluating and checking any company's ESG performance over time and as compared to peers before they take a final call on their investment decisions.

Literature Review

As Sustainable investing and ESG ratings are fairly new topics there is very limited research available especially on the report and rating side. A lot of research institutions and corporation are coming up with definite papers which explain the widely the importance of ESG factors and Investing around it. Bennani, Leila and Le Guenedal, Théo and Lepetit, Frédéric and Ly, Lai and Mortier, Vincent and Roncalli, Thierry and Sekine, Takaya(2018) have bought insignificant points as to How ESG Investing Has Impacted the Asset Pricing in the Equity Market. Barnett Salomon (2006) has fairly advanced the debate where they have equated the relationship that lies between the social and the financial performance and has measured the financial–social performance link mutual funds that practice socially responsible investing (SRI). While L Bennani, T Le Guenadal, F Lepetit, L Ly, V Mortier, T Sekine (2018) have spent some significant time in explaining the Alpha and Beta of ESG Investing, its Berg, Florian and Kölbel, Julian and Rigobon, Roberto (2019) paper Aggregate Confusion: The Divergence of ESG Ratings actually speaks about the divergence in rating parameters and why it all leads t confusion to investment decision-makers. Various ESG rating notes were also studied during the research of this paper and the reasonable inference was drawn to cite the confusion that current ESG ratings provide and how technology and innovation can overcome it.

Research Methodology

The ephimarical data has been mostly done by way of secondary research. Reading of various research papers, materials, and associated literature were all secondary in nature although there have been certain professional conversations with Fund Managers in relation to ESG Investing, Rating, and Confusion that currently exists in the industry.

Comparing the ESG Rating Providers and Their Features

With growing need and demand, a lot of data providers have started providing ESG ratings and practically each one of them differs from the other either in report and rating methodology or scope and coverage. In certain cases the divergence is so wide that the outcome of both reports. Some of the leading players that are providing these services include Bloomberg ESG Data Service, DowJones Sustainability Index, MSCI ESG Research, Sustainalytics, Institutional Shareholder Services, Corporate Knights Global 100 and Thomson Reuters ESG Research Data. The below table compares the scope, rating scale, methodology and the usage, reputation of every rating and report provider

Provider of ESG Rating	Background	Scale of Rating	Rating Methods and evaluations	Reputation and User base
Bloomberg ESG Data	Collects data for over 9000 companies. Has an International scope	Ranking provided out of 100. It also provides certain scores from third-party rating agencies as well	Looks at over 120 ESG indicators	Bloomberg has over 12000 ESG customers globally
Dow Jones Sustainability Index (DJSI)	Following the RobecoSAM's ESG analysis. Provides rating on "DJSI World, DJSI Regions, and DJSI Country". The scope is a quite international	Out of a hundred. DJSI ranks the company which is being evaluated, against similar other companies in the same industry	For evaluation, DSJI has built-in a booklet of 80-100 questions that are very specific to the industry and include relevant economic, and ESG data. Dow Jones Updates the Index annually	DJSI has partnered with RobecoSAM to provide ESG ratings. As per last available numbers, from the available 10 Industry Group Leaders listed each of the 10 leading companies gave out a media report of their listing with DSJI
MSCI ESG Research	Provides rating of more the six thousand companies and over three lakh fifty thousand securities comprising of equity and fixed income	AAA to CCC	After collecting media from various sources available, MSCI begins its assessment marking companies over 37 issues which are key for ESG rating	MSCI major clientele consist of Institutional investors, including Legal and General Investment Management, Morgan Stanley, Northern Trust Asset Management, and PIMCO

Sustainalytics	The company covers forty-two sectors across the globe which covers more than six thousand five hundred corporations	Out of the possible hundred the database provides a comparison which is based on industry or sector	Assess 70 indicators in each industry. Also looks at systems to manage ESG risks and disclosure of ESG issues and performance	Strategic relationships with BNY Mellon, City of London Investment Management (CLIM), Columbia Threadneedle, Norwegian Government Pension Fund, and Prudential Fixed Income
Institutional Shareholder Services (ISS0	Using its acquired company of Ethix SRI and establishing processes with its partner RepRisk to provide ESG and SRI research. ISS's rating also has provisions which include climate change data and analytics from its recent acquisition of Climate Neutral Investments	ISS QualityScore: 1-10 Climetrics Score: 1 to 5 green leaves	ISS QualityScore: provides board structure, compensation, shareholder rights, and audit & risk oversight	
Corporate Knights Global 100	It has an annual index which provides Global 100 most sustainable and ESG compliant companies in the world	Out of a possible hundred, this rating agency ranks the evaluating businesses against other businesses in the same industry	Analyses and assesses fourteen key performance indicators. Corporate knights scores corporations only on relevant performance indicators for specific industry	Out of the top 10 corporations listed on the 2017 "Global 100", 4 out of 10 companies had published a press release regarding this listing
ESG Research Data by Thomson Reuters	Thomson Reuters acquired Asset4 in 2009 which now provides ESG data on over six thousand companies	Percentile rank scores (available on both percentages and letter grades from D- to A+)	Covers 400 different ESG metrics, electing 178 of the most relevant data points Categories are weighted Updated every 2 weeks	Comprehensive database ESG Scores are available on Thomson Reuters Eikon platform

Source: Company ESG product sheets and the Harvard Law School Forum on Corporate Governance

The Problem With Current ESG Ratings

While one can see the variety of methods and techniques each rating agency chooses and uses, this leads to a lot of confusion amongst investors and decision-makers almost making it. The current system of ratings looks like full of glitches, from varying metrics to evaluations which repeatedly fail to account for diverse regulatory and compliance authorities across different geographies. There are a variety of reasons that makes the current ESG rating system slightly "flawed" or not true to its sense. Some of them include

1. **Sustainability is Subjective**: While each provider follows a proprietary way of rating the ESG factors, the problem of divergence between two ratings fundamentally is at the heart of it- that sustainability is subjective and its definition differs from one agency to another

2. Different organizations, different approaches: Despite the end goal of measuring the ESG factors being the same, the different methodologies from different rating providers often leads to misleading results. While both may be correct in their own way and neither may be wrong both rating providers may represent a point of view that may well be considering different factors, for different purposes. This leaves a critical gap that often confuses investors.

3. **Systematic failures**: It's a well-known fact that ESG ratings are subjective, but with the amount of money that has gone in ESG investment from Wall Street it indeed creates a widespread conflict of interest. Supplemented by varying guidance and opaque business practices which are pretty widespread unregulated parts of the financial services industry investors usually find themselves stuck in these systematic failures.

4. Ratings are not the only answer: While ESG rating companies provide valuable analysis and insights to the investing community, the scope of measuring ESG factors is way beyond just the ratings. There are various issues such as transparency which are more complex than just a number on a rating report which needs to be carefully analyzed. This makes ESG rating highly complex making it extremely difficult for companies to understand.

Can Technology Improve ESG Ratings?

As one might have noted a lot of problems that persist in the current rating system is that it doesn't have a standard parameter of measure. There has been a constant debate on whether some areas of tech could actually help in bringing parity into the whole system.

There has been a lot of debate that Artificial Intelligence(AI) and to an extent deep tech could have an answer. It is believed by many that at the crossroads of the "holy" trinity of investing which is technology, innovation, and sustainability- artificial intelligence may have the ability to bring in a dramatic change and impact on ESG investing—which may include bringing in

accountability for environmental, social, and governance risks and opportunities in investing. Significant advancements in AI has opened opportunities for companies to test if this could help in unifying the data from various data sources and bringing in a result that would be free of disparities. AI could also open doors to enhancing investors' abilities to analyze companies and provide more power to analyze everything for which they can collect data.
While core AI could be the answer, people in specifics ave tagged machine learning to give answers to ESG problems as they believe Machine learning generates data-driven materiality matrices, which outperform traditional keyword searches

Case Study RS Metrics- Bringing Geo-Spatial Analysis and Data Science to create ESG Benchmarks
A different variant of technology called geospatial analysis is actually solving this problem and an early-stage company in the United States of America named RS Metrics is making it happen. RS Metrics, through its product **"ESGSignals",** uses Satellite imagery measurements of activity for 1,000s of industrial locations operated by publicly-owned companies. The company carries out the weekly measurement for critical aspects such as

- Land usage (perimeter of property, construction)
- Environmental impact (air quality, pollutants, emissions)
- Employment (employee cars)
- Clean energy (Renewable energy project progress)
- Production and raw materials usage (semi-trailer trucks, rail cars, stockpiles, products)

for each of its monitored location.
The company also analyses critical environmental impact contributors such as Coal Mining and Reserves, Food Meat/Crops, Construction & Deforestation, Water Consumption, etc. RS Metrics has given significant evidence that Satellite-derived analytics has well emerged as a method to provide investors with real-time data on the impacts of their investments. With satellite data, investors are provided with key insights that show an accurate depiction of how their investments correlate with environmental factors like carbon footprints, water usage, and climate change.

Conclusion
Technology and Innovation have definite answers to the current ESG rating problems. It just the more mainstream adaptability of these technologies that could help in getting better ESG measurements and help the investor community in identifying the best of the companies that comply with ESG factors truly creating a positive, environmentally-friendly footprint on our planet.

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