

OSSERVATORIO ESG

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The new European regulation, the requests of investors and the COVID-19 pandemic have provided the background for a rethinking of traditional financial models, placing technology and sustainability at the center of decision-making processes to direct capital flows towards sustainable investments and an inclusive growth.

ARTIFICIAL INTELLIGENCE AND ESG DATA IN INVESTMENT-DECISION MAKING¹

Reflection by **Martina Macpherson**, Head of ESG Strategy, ODDO BHF Asset Management and Private Equity

Introduction

When it comes to sustainable (ESG) investing and Artificial intelligence (AI), investment decision-makers should be aware of the following:

- AI, robotics and automation are important investing themes, which can assist investors in identifying companies that are in the business of developing such technologies and new means for growth and innovation.
- AI-based technology can also be used to enhance portfolio decision making, especially when and where screening of extra-financial information and controversies in real time is concerned.

Technology, ICT, and related sectors, especially when and where AI and robotics are concerned, offer new thematic investment opportunities and the growth of the artificial intelligence market is enviable: Grand View Research estimates it to be US\$39.9 billion (2019) and projects a 42.2% compound annual growth rate for the segment, between 2020 and 2027².

On the analysis side, advances in AI, which encompasses a variety of technologies, that have made it easier than ever to automate complex tasks at high speed and volume, revolutionizing how companies and investors can work with financial and extra-financial data.

AI, and machine learning, along with automation, and robotics, has become commonplace and essential to the operations of mainstream organizations in all business areas. Repeatable tasks are carried out by bots in a fraction of the time, and algorithms and computer programs can read information that might have previously been unusable due to its size or amount of garbage data.

Artificial Intelligence and ESG investing

These AI capabilities have proven to become helpful for ESG investing, which often relied on self-disclosed, annualised corporate information, exposed to inherent data challenges and biases.

Meanwhile, investment managers have come under increasing pressure to measure more and more ESG criteria in their portfolios. But a lack of clear, comparable and consistent ESG data is making it hard for investors to assess long-term risks and rewards.

Here, AI is potentially the answer: technologies will filter and sort essential ESG data that investors currently lack, acting as the catalyst for sustainable investing - at scale.

Much of the potential for artificial intelligence in ESG investing comes from sentiment or emotional analysis algorithms. These algorithms allow computers to analyse the context and tone of a conversation, a task that code could not as effectively do. Some algorithms also allow for forecasting, which in turn can enable investors to gain a forward-looking perspective on

¹ This article explores the connection between Artificial Intelligence and ESG data that Martina MacPherson has already presented from a general point of view in the chapter "Nuove tecnologie FinTech per i dati ESG" Aiaf white paper n.184, April 2021 "Sostenibilità Economico Finanziaria delle Società FinTech", the article "Artificial Intelligence and FinTech Technologies for ESG Data and Analysis", February 15/2021, SSRN 3790774 and the article "Intelligenza artificiale e comunicazione dei dati ESG", May 2021, Wolters Kluwer all in collaboration with Andrea Gasperini and Matteo Bosco.

² Grand View Research, Artificial Intelligence Market Size, Share & Trends Analysis Report By Solution (Hardware, Software, Services), By Technology (Deep Learning, Machine Learning), By End Use, By Region, And Segment Forecasts, 2020 - 2027, Report 2020, Link: <https://www.grandviewresearch.com/industry-analysis/artificial-intelligence-ai-market>

exposures to negative or positive change trajectories and scenarios.

If ESG investing involves considering the material opportunities and risks of sustainable decision-making, AI provides both tremendous benefits and risks to watch out for. In short, while giving ESG investing the opportunity to grow and expand, AI can itself be an "G" risk for companies that aim to undertake the effort.

In this context it is important to note that more ESG data and disclosures does not necessarily mean more data clarity, consistency and comparability, and less exposure to corporate "green washing" risks.

According to research by Deutsche Bank³, ESG data and ESG rating biases remain a key concern, also when using AI based sentiment analysis.

These biases are due to various factors including:

- *Company size and budget* = with more resources on average dedicated to sustainability;
- *Company marketing and content* = a richer variety of language in corporate reports maybe more indicative of marketing creativity and "green-washing";
- *"ESG ratings bonus"* = companies that simply disclose more information tend to be at times rewarded for being "verbose"; they can also be rewarded for using positive "sentiment" and for highlighting targets and "goals" in a descriptive manner.

ESG aggregate confusion

The confusion around the pluralism of ESG ratings and their inherent data biases is supported by academic evidence: when assessing the landscape of ESG ratings, MIT Sloan found that the correlation among agencies' ESG ratings is on average 0.61; by comparison, credit ratings from Moody's and Standard & Poor's are correlated at 0.99. The research team found that rating agencies may adopt different definitions of ESG performance, or they may take different approaches to measuring that performance or weighting the ESG attributes. They concluded that *"the information the decision-makers receive from [ESG] rating agencies is relatively noisy"*.⁴

Conclusions

AI capabilities have proven to be very helpful for Environmental Social Governance (ESG) investing, which often rely on self-disclosed annual corporate information, exposed to inherent data challenges and biases.

As ESG investing is evolving from financial towards a more double and dynamic materiality concept, AI-based sentiment

and emotional analysis in turn needs to constantly evolve to capture different nuances and their context.

Further work needs to be done to address inherent biases in sentiment analysis algorithms that are programmed to replicate and reference existing factors and patterns. If reference points such as ESG definitions, KPIs and frameworks are not clear, information biases and divergences will remain which will in turn can increase the barriers to entry and layers of complexity for investors.

Meanwhile, innovation-centred collaboration efforts between regulators, standards setters, assurance, and innovation providers, and investors, can provide a meaningful approach for ESG data complexity management.

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³ Deutsche Bank, Big Data Shakes Up ESG Investing, 2018, [Link](#)

⁴ MIT Sloan Business School, Aggregate Confusion: The Divergence of ESG Ratings, 2019 https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3438533