



MEASURING AND DISCLOSING ENVIRONMENTAL, SOCIAL AND GOVERNANCE (ESG) INFORMATION AND PERFORMANCE

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Abstract

Although the need to measure and disclosure companies' social and environmental information is not new, there has been a recent unprecedented interest growth regarding this subject among businesses, capital market participants, professional organisations, and regulators all over the world. This rapid growth in interest in social and environmental measurement and disclosure has led to a proliferation of different proposals by rating agencies and other organizations to measure the Environmental, Social, and Governance (ESG) performance of companies, which has contributed to also create confusion. This study aims to shed some light on the current state of ESG measurement and disclosure by examining the evolution of business-related sustainability terms and their connotations; taking stock of existing European Union (EU) regulations and international sustainability frameworks from non-governmental organisations; analysing the evolution of the ESG rating market and main players; identifying, clarifying, and comparing current ESG ratings, metrics, and indices; and finally, elaborating on the challenges and recommendations that can be considered in future developments of ESG measurement and disclosure.

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Executive summary

Aim of the study

The need to measure and disclose companies' social and environmental information is not new and has been highlighted for many decades by prosocial and environmental organisations and conscientious citizens. However, there has been unprecedented growth in interest regarding this subject among businesses, capital market participants, professional organisations, and regulators all over the world.

This study aims to shed some light on the current state of environmental, social and governance (ESG) measurement and disclosure by (i) examining the evolution of business-related sustainability terms and their connotations, (ii) taking stock of existing EU regulations and international sustainability frameworks from non-governmental organisations, (iii) analysing the evolution of the ESG rating market and main players, (iv) identifying, clarifying, and comparing current ESG ratings, metrics, and indices, and finally, (v) elaborating on the challenges and recommendations that can be considered in future developments of ESG measurement and disclosure. In order to do so, this study analyses the eight ESG ratings on which ESG investors primarily rely: Moody's ESG Solutions Score (formerly Vigeo EIRIS ESG Scores), Bloomberg ESG Scores, Refinitiv ESG data, FTSE Russell ESG Ratings, Sustainalytics ESG Risk Rating, MSCI ESG Ratings, S&P Global ESG Score, and ISS ESG Corporate Rating.

Policy context

The growing interest among businesses, capital market participants, professional organisations, and regulators worldwide in incorporating ESG factors into investment strategies has led to the proliferation of proposals to measure the ESG performance of companies by ESG rating agencies, especially those who are increasingly concerned about sustainable investment.

Regulations can play an important role in the availability and standardisation of corporate sustainability (CS) and ESG information which may allow the development of improved ratings and metrics. However, the importance assigned by different governments and regulators to these issues is not homogeneous worldwide, with different speeds in the development of this regulation.

The EU plays a leading role in strengthening the measurement and reporting of corporate sustainability and ESG practices. European regulations are currently in full swing, with new regulations coming into full force by 2022 and 2023. Most regulatory milestones are important steps in the implementation of the "Action Plan on Financing Sustainable Growth", published in March 2018, by the European Commission. This Action Plan incorporates important measures to ensure that the financial sector plays a significant role in achieving the objectives of the European Green Deal. Specifically, the Action Plan aims to reorient capital towards sustainable investment, manage financial risks arising from climate change and other environmental and social problems, and foster transparency and long-term financial and economic activities.

Specifically, among these milestones, we can highlight the Non-financial Reporting Directive (NFRD), which has been enforced since 2018 on large public-interest companies with more than 500 employees, including listed companies, banks, insurance companies, and other companies designated by national authorities as public-interest entities. This regulation requires companies to disclose non-financial information such as measures taken regarding environmental and social matters, treatment of employees, respect for human rights, anti-corruption and bribery, and diversity on company boards (Directive 2014/95/EU). Another milestone is the sustainable finance disclosure regulation (SFDR), which was established in 2021 as sustainability-related disclosure requirements for financial market participants, financial advisers, and financial products (Regulation EU 2019/20881). This regulation is completed with the regulatory technical standards set out in the Delegated Regulation to be used by financial market participants when disclosing under the SFDR. Additionally, we can mention the proposal of the Corporate Sustainability Reporting Directive (CSRD), which is enforced on all large companies and all companies listed on regulated markets (except listed micro companies). This newly proposed directive is a response to some of the problems detected in the NFRD in its extension of the scope of its application and introduction of more detailed reporting requirements and mandatory reporting. Finally, we highlight the EU Taxonomy Regulation (Regulation (EU) 2020/852) and the EU Taxonomy Climate Delegated Act, which are related to a classification system based on scientific criteria establishing a list of environmentally sustainable economic activities. The aim is to provide companies, investors, and policymakers with appropriate and clear definitions of the economic activities that can be considered environmentally sustainable.

Main findings

Most ESG ratings seem to follow a financial materiality approach. This means that the focus is on which ESG-related factors have the potential to affect business performance and shareholder returns. This broader adoption of financial materiality in comparison to sustainable materiality is in line with the evolution of the definition of ESG, which is more connected to financial. These ESG ratings and metrics are oriented toward measuring the risks and opportunities that ESG factors posit for companies as a means to make investment portfolios more profitable, which contrasts with the definition of CS that centers on the identification of the sustainability impacts of companies to mitigate them.

A few ESG ratings analysed in this study adopt a double materiality approach. However, even if the technical methodology document provides in-depth details, the specific way in which sustainability versus financial materiality is applied cannot be discerned. This implies that two companies obtaining a similar score might present very different ESG patterns: one more focused on reducing ESG risks and taking advantage of ESG opportunities, and another focused on sustainability mitigation practices. We acknowledge that sustainability and financial materiality are linked because a company managing its ESG risks effectively should imply that its sustainability impacts are not high. However, this is also paradoxical. There are sustainability measures that take time to be recognized as relevant and have the potential to affect company performance. For example, plastic in oceans has caused very serious damage to ecosystems and humans and only recently it has been considered a material ESG topic.

Given the great difficulty for ESG rating agencies in developing ESG ratings and metrics to adequately capture corporate sustainability, the role of regulation is critical. The EU is a global leader in promoting CS reporting and ESG market transparency. Although the process is not without its difficulties, the continued adoption of new EU regulations such as the EU Taxonomy for sustainable activities, the SFDR and the proposal of the CSRD allows us to be optimistic about the evolution and development in the availability and standardization of CS/ESG information.

Related and future JRC work

Considering the major challenges in measuring and disclosing CS information detected in this report, the authors have developed a second study focusing on how European companies measure and report CS. Concretely, the follow-up report has two objectives: (1) analysing European companies' CS reporting to determine the trends in terms of the terminology, EU regulations, international sustainability frameworks, ratings and indices, KPIs, and materiality approaches used, and (2) comparing the CS metrics of some of the most relevant rating agencies to identify their similarities and differences. Overall, this work aims to contribute to advancing greater homogenisation in the measurement and reporting of CS.

1 Introduction

The need to measure and disclose companies' social and environmental information is not new and has been highlighted for many decades by prosocial and environmental organisations and conscientious citizens. However, there has been unprecedented growth in interest regarding this subject among businesses, capital market participants, professional organisations, and regulators all over the world.

A sign of this growing interest in capital markets is the extensive signature of financial actors on the Principles for Responsible Investment (PRI), which today has more than 4,000 signatories from over 60 countries representing over US\$120 trillion of assets (PRI, 2021). These principles include the commitment to incorporating environmental, social, and governance (ESG) issues into investment analyses and decision-making processes and seeking appropriate disclosure on ESG issues by investing entities. One possible justification for this strong impulse comes from studies such as "Who Cares Wins: Connecting Financial Markets to a Changing World", published in 2004 by the United Nations Global Compact (UNGC), which is based on the premise that companies that take ESG-related risks and opportunities into account have more profit potential for their investors and provide recommendations to better integrate these issues into financial analyses, asset management, and securities brokerage (Global Compact, 2004).

Governments have also adopted proactive positions in Corporate Sustainability (CS) by signing important international agreements. In this sense, 2015 was an important international milestone with the adoption of a new global sustainable development framework: the 2030 Agenda for Sustainable Development (the "2030 Agenda"), which has, at its core, the Sustainable Development Goals (SDGs)¹ and the Paris Agreement to significantly reduce the risks and impacts of climate change. In response to these commitments, governments have developed regulations regarding the role of companies and capital markets in achieving these goals. Although the momentum is global, the European Union (EU) has certainly become a pioneer and a driver of CS.

Along with the role of capital markets and governments, many international organisations are developing efforts to clarify the role of businesses and capital markets in sustainability. Following these private and public trends, the market for ESG ratings has grown in parallel in response to this growing interest in ESG/sustainable investment (Avetisyan and Hockerts, 2017). Thus, many financial rating agencies such as Bloomberg, Refinitiv Eikon, or Morgan Stanley Capital International (MSCI), among others, have put forward many proposals to measure ESG factors. While justified by the urgency of the need for action, this rapid growth in interest in CS has created considerable confusion.

First, concepts such as Corporate Social Responsibility (CSR), CS, and ESG factors are used interchangeably. Although related, these terms have different connotations. While terms such as CS connect strongly with the broad concept of global sustainability and are more widely used by governmental, non-governmental, and academic organisations (Montiel and Delgado Ceballos, 2014), the term ESG has taken off strongly in capital markets and is gaining prominence. This evolution is not neutral as the main assumptions change from one concept to another.

Second, the many international frameworks for CS reporting, far from being consistent with each other, create different assumptions as to what is important for the company to report, leaving companies with a great deal of discretion as to what to count on, depending on the framework chosen as a reporting reference for instance Global Reporting Initiative (GRI) or Sustainability Accounting Standards Board (SASB) (Siew, 2015). International sustainability frameworks are now developing efforts to coordinate their proposals so that they can complement each other, as in the case of the GRI and SASB, who have recently published a document titled "A Practical Guide to Sustainability Reporting Using GRI and SASB" to help companies implement both international frameworks appropriately (GRI and SASBS, 2021). However, the situation remains far from clear for companies facing international benchmarking frameworks.

Third, regulation is proliferating, but not homogeneously. While Europe is a pioneer in promoting CS reporting and ESG market transparency, countries such as the United States are currently in a phase of intense debate about what type of information should be required from companies in their mandatory reports (Jebe, 2019; Securities and Exchange Commission, 2022).

Finally, there is a proliferation of proposals by ESG rating agencies that measure the ESG performance of companies that are especially aimed at investors who are increasingly concerned about sustainable investment. The role of these companies is proving to be very important in measuring CS but is also manifesting significant

¹ <https://sdgs.un.org/goals>

problems that have been previously manifested in the academic field (Antolín-López et al., 2016; Berg et al., 2019; Chatterji et al., 2016; Christensen et al., 2022).

This study aims to shed some light on the current state of ESG measurement and disclosure by examining the evolution of business-related sustainability terms and their connotations; taking stock of existing EU regulations and international sustainability frameworks from non-governmental organisations; analysing the evolution of the ESG rating market and main players; identifying, clarifying, and comparing current ESG ratings, metrics, and indices; and finally, elaborating on the challenges and recommendations that can be considered in future developments of ESG measurement and disclosure.

2 Understanding CS, ESG, and related concepts: Definitions and dimensions

In this section, we theoretically contrast four terms that are predominantly used when considering sustainability or sustainable development in the business field—CS, CSR, ESG, and SDGs. These terms share some commonalities, given that they focus on the relationships between business and society, but also imply definitional nuances (see Table 1). We discuss the origin of each concept and provide a final definition based on its prevailing understanding. Table 1 summarises the main differences found.

Table 1. CS, CSR, and ESG comparisons

Concept	Definition	Main dimensions	Main objective
CS	Corporate action that simultaneously promotes economic prosperity, social equity, and environmental integrity	Economic, social, and environmental	Identify and mitigate business-related sustainability impacts and their interrelations
CSR	Corporate action that promotes moral/social responsibility behaviours	Social (and environmental)	Identify and mitigate business-related social harm or irresponsible behaviours in society
ESG	The collection of environmental, social, and governance factors that can materially affect a business	Environmental, social, and governance	Identify ESG-related risks and opportunities for companies' financial performance
SDGs	A complete set of goals that needs to be achieved to ensure sustainable development at a global level	Environmental, social, economic, and governance	Highlight urgent global sustainability challenges and ensure a sustainable future for all

Source: Elaborated by the authors

The origin of the CS concept can be linked to the Brundtland Commission Report's (1987) definition of sustainable development as "development that meets the needs of the present without compromising the abilities of future generations to meet their own needs" (Brundtland, 1987: 16). The report emphasised a long-term perspective and the urgency of a global agenda for change towards economic development that could be sustained without damaging the natural environment and depleting natural resources. However, it was not until 1995 that sustainability was first mentioned in management literature (Shrivastava, 1995; Starik and Rands, 1995). These definitions introduced the term "ecological sustainability" and contrasted environmental protection with economic development in line with the guidelines of the Brundtland Commission Report. Gladwin et al. (1995) defined sustainable development "as a process of achieving human development in an inclusive, connected, equitable, prudent, and secure manner". This definition introduces the social component of sustainable development.

Although sustainability has become a growing theme of interest in business and academia since the end of the 1990s, it was not until 2005 that the term CS was used. Bansal (2005) introduced the term "CS development" as a tridimensional construct based on the triple bottom line that consisted of (1) economic prosperity achieved through value creation, (2) social equity through CSR, and (4) environmental integrity through corporate environmental management. This definition broadly impacted the field as it helped operationalise CS as a construct. Similarly, Neubaum and Zahra (2006) defined CS as growth that meets the expectations of diverse stakeholders (e.g., society and the natural environment).

In general, there is academic and practical consensus that CS is a tridimensional construct (Antolín-López et al., 2016), whether the three dimensions are referred to as economic, social, and environmental (predominately), or as the 3Ps (Profit, People, Planet) or Elkington's (1997) "triple bottom line" (e.g., Amini and Bienstock, 2014; Hart and Milstein, 2003; Hahn et al., 2014; Hart and Dowell, 2011; Montiel and Delgado-Ceballos, 2014 for a review; Szekely and Knirsch, 2005; Valente, 2012). These dimensions are interconnected and impact each other (e.g., Montiel, 2008, Valente, 2012). However, there is less agreement on the subdimensions or topics that constitute each CS dimension. For example, Antolín-López et al. (2016) compared CS-related metrics from a variety of stakeholders (e.g., academics, companies, investors, non-profit organisations, rating agencies, and policymakers) to find high levels of heterogeneity, especially in the social and economic dimensions, of the indicators used to measure them.

A connected but distinct term is CSR (Bansal and Song, 2017; Montiel, 2008; Montiel and Delgado-Ceballos, 2014). Given that both CS and CSR tend to study the relationship between business and society, they are frequently confused. The CSR field originated in the 1950s when different voices began to claim managers'

moral responsibility to society and limit business transgressions to local communities and labour (Bansal and Song, 2017). CSR is defined as a corporate action that positively affects social stakeholders' interests and does not violate the legitimate claims of another stakeholder (Bateman and Shell, 2002), with companies that could be simultaneously socially responsible and socially irresponsible (Strike et al., 2006). Hence, CSR focuses on social responsibility, social welfare orientation, and stakeholders' relationship orientation (Barnett, 2007). However, recent conceptualisations of CSR have included environmental responsibility as part of social welfare or the natural environment as a stakeholder (e.g., Flammer, 2013). Thus, both terms have evolved to converge in the integration of profitability, social integrity, and environmental management, regardless of whether they conceptualise environmental issues as a subset of social issues (CSR) or as a third element of sustainability (CS). Montiel and Delgado-Ceballos (2014) conclude that CSR is limited to the social responsibility of companies, although environmental aspects can be included, meaning that CSR commitment contributes only partly to sustainable development. However, the concept of CS covers the overall idea of sustainable development at the business level, as it encompasses the interrelationships between business economic, social, and environmental dimensions. Bansal and Song (2017) add that CSR rails against the amorality of business, whereas CS takes a systems perspective that is the basis of sustainable development.

In parallel to the evolution of the concepts of CS and CSR, the new term ESG has emerged, especially in the finance field, to refer to sustainability. Indeed, sustainable finance is defined as "the process of considering ESG when making investment decisions in the financial sector, leading to more long-term investments in sustainable economic activities and projects"². The term ESG first appeared in December 2004 in the report "Who Cares Wins: Connecting Financial Markets to a Changing World" developed by the UNGC. The report targeted financial sector actors and provided guidelines and recommendations on how to integrate ESG factors into capital markets (Global Compact, 2004). This document promotes the active management of risks and opportunities related to environmental and social trends in combination with rising public expectations for better accountability and corporate governance. It was endorsed by a group of 20 financial institutions, such as asset owners (e.g., Allianz SE and Aviva PLC), banks (e.g., HSBC and MSCI), asset managers (e.g., Henderson Global Investors), and rating agencies (e.g., Innovest) (Eccles et al., 2020). The report resulted from the former UN Secretary-General Kofi Annan's initiative in collaboration with the International Finance Corporation (IFC) and the Swiss Government. One year later, the UN Environmental Program Finance Initiative (UNEP-FI) published the "Freshfield Report" which provided the first evidence of the financial relevance of ESG factors (UNEP-FI, 2005). These two reports are regarded as the backbone for the creation of the PRI in 2006, which has been increasingly attracting signatories of global financial institutions (Eccles et al., 2020). The PRI and academic studies showing a direct positive relationship between CS performance and financial performance around 2013 and 2014 have contributed to the remarkable growth in ESG investments.

Albeit without a formal definition (Eccles et al., 2020; Matos, 2020), ESG can be defined as the collection of environmental, social, and governance factors that can materially affect a business and its value creation. Although ESG criteria are regarded as the core of investment analysis and decision-making, there is still ambiguity regarding what makes an ESG factor relevant (Eccles et al., 2020). In financial markets, ESG relevancy is captured by the term "materiality", which defines the issues that are important for a company or business sector because they can have major effects on corporate financial and economic performance, reputations, and relationships with internal and external stakeholders (Jebe, 2019). In financial markets, ESG relevance is captured by the term materiality as a potential factor that affects business performance. Although some ESG investors are value-driven, in the sense that they focus on investments that reduce harm to society and the natural environment, most ESG investors are return-driven, as they are attracted by the evidence that integrating ESG factors can improve shareholder returns (Eccles et al, 2020; Van Duuren et al., 2016). In the first case, investors use sustainability materiality, in which the focus is placed on the negative or positive impact that companies have on society and the natural environment. Materiality denotes the ESG factors affecting external stakeholders. This vision of materiality, in which sustainability is the outcome, is closely related to CS and impacts investments, which seeks to maximise the positive impact of their investments on society and the natural environment while reducing the negative effects of their investments (Global Compact Investment Network, 2022).

However, financial materiality focuses on the risks and opportunities that ESG factors imply for a company. The premise behind financial materiality is that the integration of ESG factors can help investors identify companies that are well-positioned for the future and those that can underperform due to the mismanagement of ESG risks. ESG investments assume that ESGs are financially relevant (MacNeil and Esser, 2022). This perspective

² https://ec.europa.eu/info/business-economy-euro/banking-and-finance/sustainable-finance/overview-sustainable-finance_en

of materiality makes the economic case for integrating ESG into investment analysis and decision-making. Such divergence in interpreting ESG materiality is manifested in a complex ecosystem of ESG metrics that requires contextualisation for correct interpretation and use.

Although both visions of materiality persist in the ESG market, it seems that financial materiality prevails because most definitions of ESG are delivered through the financial materiality lenses, or as much, they combine a double materiality: sustainability and financial materiality. The steady increase in ESG rating agencies and related products has contributed to the broad adoption of ESG and its financial materiality (Eccles et al., 2020; MacNeil and Esser, 2022). Therefore, consolidation of the ESG market has hampered institutional change sought by the UNGC and the Socially Responsible Investment movement, as economic/shareholders continue to be primary in the investment sector (Avetisyan and Hockerts, 2017).

While the term CS is widely used by business academics (Montiel and Delgado Ceballos, 2014), investors and rating agencies primarily use the term ESG, which nurtures variance in the understanding and measurement of sustainability in the business field. First, we observe differences in the core dimensions of each of these concepts. CS encompasses economic, social, and environmental factors, although some governance aspects are included in economic and social dimensions (Antolín-López et al., 2016). However, ESG entails governance as a distinct dimension but does not encompass economic factors within the construct, since ESG business-related impacts are factors in financial analyses (Jebe, 2019). Second, the major differences between the concepts reside in what is emphasised when the relationship between business and society is addressed. CS is rooted in the notion that there are economic, social, and environmental factors that companies affect (where sustainability is the outcome), whereas ESG focuses on the environmental, social, and governance factors that affect business (where economic/financial performance is the outcome), given the impact of companies on sustainability. The main premise is that linking sustainability impacts to financial returns is critical to achieving mindset changes in the investment industry and managers (Jebe, 2019; MacNeil and Esser, 2022).

Finally, a recent and popular term is SDGs. The term emerged under the 2030 Agenda launched in 2015 by the United Nations in collaboration with a myriad of stakeholders such as governments, big corporations, non-governmental organisations, and civil society³. It consists of 17 SDGs that address what are considered the most important and urgent sustainability-related grand challenges that ensure a sustainable future for all. SDGs consider sustainability at the societal level in comparison to CS or ESG which focuses on sustainability at the firm level. However, CS and ESG are essential for achieving SDGs (Montiel et al., 2021).

³ <https://sdgs.un.org/es/goals>

3 ESG-related regulations in the EU

Regulations can play an important role in the availability and standardisation of CS/ESG information which may allow the development of improved ratings and metrics. However, the importance assigned by different governments and regulators to these issues is not homogeneous worldwide, with different speeds in the development of this regulation.

The EU plays a leading role in strengthening the measurement and reporting of CS/ESG practices. European regulations are currently in full swing, with new regulations coming into full force by 2022 and 2023. Most regulatory milestones are important steps in the implementation of the “Action Plan on Financing Sustainable Growth”, published in March 2018, by the European Commission. This Action Plan incorporates important measures to ensure that the financial sector plays a significant role in achieving the objectives of the European Green Deal. Specifically, the Action Plan aims to reorient capital towards sustainable investment, manage financial risks arising from climate change and other environmental and social problems, and foster transparency and long-term financial and economic activities (European Commission, 2018).

Among the actions included in this plan, we can highlight some that are closely related to the objectives of this study. For example, Action 1, which states that the EU should establish an EU classification system for sustainable activities, resulted in the EU Sustainability Taxonomy Regulation (described below), which may determine the future ESG ratings and metrics. Action 6 states that the EU should promote better integration of sustainability in ratings and market research, which is strongly linked to the creation of ESG metrics and ratings by rating agencies. In this regard, the control role assigned to the Commission is particularly interesting; specifically, the Action Plan clarifies that “[t]he Commission is monitoring developments in the credit rating market and acknowledges the need for greater understanding of and transparency about how credit rating agencies take sustainability factors into account” (European Commission, 2018: 7). Action 7 proposes clarifying institutional investors’ and asset managers’ duties which, according to the Plan, means “to (i) explicitly require institutional investors and asset managers to integrate sustainability considerations in the investment decision-making process and (ii) increase transparency towards end-investors on how they integrate such sustainability factors in their investment decisions, in particular as concerns their exposure to sustainability risks” (European Commission, 2018: 8). These actions are closely related to the Sustainable Finance Disclosures Regulation (SFDR) which is aimed particularly at all actors involved in financial markets. Action 9 asks for strengthening sustainability disclosure and accounting rulemaking. This action seeks to improve the quality of information reported by companies and justifies the proposal of a new Corporate Sustainability Reporting Directive (CSRD). The quality of companies’ reported information allows for the development of better ratings and metrics for CS/ESG practices. Therefore, the Action Plan on Financing Sustainable Growth inspires the regulation of measuring and reporting CS/ESG information. Table 2 presents a chronological list of the main regulatory milestones.

Along with this list of EU regulations, there are other documents of vital importance for understanding the requirements derived from the regulations listed in Table 2. This is the case with the Guidelines on Non-Financial Reporting (the methodology for reporting non-financial information) and the Guidelines on Reporting Climate-related Information published in 2017 and 2019, respectively, to clarify the application of the Non-Financial Reporting Directive (NFRD). The guidelines are not only focused on the companies under the Directive, but also aim to be a sign of good practice for all companies. However, these guidelines are not mandatory, and companies can decide to use other international, European, or national guidelines.

The following sub-sections summarise the most relevant aspects of the EU regulations on measuring and reporting CS/ESG information as well as some notes from this additional non-mandatory documentation, which we believe are important for understanding the regulatory context.

Table 2. The EU's main regulatory milestones

Date	Regulation	Enforced on	Into force
2014	The Non-Financial Reporting Directive (NFRD) Directive 2014/95/EU of the European Parliament	Large public-interest companies with more than 500 employees including listed companies, banks, insurance companies, and other companies designated by national authorities as public-interest entities.	2018 (covering the financial year 2017)

2019	Sustainable Finance Disclosures (SFDR) Regulation (EU) 2019/2088.	Financial market participants, financial advisers, and financial products.	March 2021
2020	The EU Taxonomy Regulation Regulation (EU) 2020/852 on the establishment of a framework to facilitate sustainable investment	European Commission must provide, in delegated acts, the technical screening criteria.	July 2020
2021	EU Taxonomy Climate Delegated Act	Companies and financial market participants for related disclosures. (Investors and companies could also use these criteria as a guide for investment decisions. Not mandatory).	Mandatory reporting under the Taxonomy Regulation will apply from January 2022 for the two climate objectives, and from January 2023 for the other four objectives
2021	Proposal of Corporate Sustainability Reporting Directive (CSRD) COM/2021/189 final	All large companies and all companies listed on regulated markets ⁴ (except listed micro companies).	Still a proposal
2022	Regulatory technical standards Commission Delegated Regulation (EU) .../... of 6.4.2022 Supplementing Regulation (EU) 2019/2088	Financial market participants, financial advisers, and financial products.	January 2023

Source: Elaborated by the authors

3.1 NFRD

Directive 2014/95/EU of the European Parliament, also called the NFRD, was an important milestone for transparency regarding CS/ESG practices. However, this regulation was only applicable to large public-interest companies with more than 500 employees, including listed companies, banks, insurance companies, and other companies designated by the national authorities as public-interest entities.

The NFRD was mandatory, starting in 2018, for all EU members. To this end, the government of each EU member had to transpose this directive. For example, in the case of Spain, this transposition was made with Law 11/2018, which amended the Commercial Code, Capital Companies Law, and Audit Law.

Companies falling under the regulation are required to disclose non-financial information to increase the confidence of investors, consumers, and society in general. Specifically, the NFRD referred to some non-financial thematic aspects, such as environmental and social matters, treatment of employees, respect for human rights, anti-corruption and bribery, and diversity on company boards (in terms of age, gender, and educational and professional background). Additionally, Article 1 of the Directive specified that the non-financial statement should contain (Directive 2014/95/EU: 4):

- “(a) a brief description of the undertaking's business model;
- (b) a description of the policies pursued by the undertaking in relation to those matters, including due diligence processes implemented;

⁴ “Regulated market means a multilateral system operated and/or managed by a market operator, which brings together or facilitates the bringing together of multiple third-party buying and selling interests in financial instruments – in the system and in accordance with its nondiscretionary rules – in a way that results in a contract, in respect of the financial instruments admitted to trading under its rules and/or systems, and which is authorized and functions regularly and in accordance with the provisions of Title III of the Markets in Financial Instruments Directive” (Directive 2004/39/EC, article 4).

(c) the outcome of those policies;

(d) the principal risks related to those matters linked to the undertaking's operations including, where relevant and proportionate, its business relationships, products or services which are likely to cause adverse impacts in those areas, and how the undertaking manages those risks;

(e) non-financial key performance indicators relevant to the particular business”.

Although the NFRD has been a very important step in promoting CS/ESG reporting, it gave companies significant flexibility. Thus, companies can consider using one or several reporting frameworks among a huge list of possibilities including national frameworks, Union-based frameworks such as the Eco-Management and Audit Scheme (EMAS), or international frameworks such as the UNGC, the Guiding Principles on Business and Human Rights implementing the UN “Protect, Respect, and Remedy” Framework, the Organisation for Economic Co-operation and Development (OECD) Guidelines for Multinational Enterprises, the International Organisation for Standardisation's ISO 26000, the International Labour Organisation's Tripartite Declaration of principles concerning multinational enterprises and social policy, the GRI, among other recognised international frameworks (Directive 2014/95/EU). Companies can also consider using other reporting frameworks, provided they specify which frameworks they rely on.

The variety of reporting frameworks developed by different stakeholders offers flexibility for companies, however, there is a lack of clarity. The different reporting frameworks vary in the aspects they cover and the weight they put on each of them. This is so even for the main purpose for which the information is reported. For example, this is clearly illustrated in the document published in 2021 by the GRI and SASB titled “A Practical Guide to Sustainability Reporting Using GRI and SASB Standards.” According to this practical guide, the goal of sustainability reporting using GRI standards is “to provide transparency on how an organization contributes or aims to contribute to sustainable development” (GRI and SASB, 2021: 5). Therefore, the focus is on the economic, environmental, and social impacts of the activities of a company of global sustainable development (although there is an underlying assumption that, if not already financially material at the time of reporting, the reported impacts may become financially material). In contrast, the SASB's industry-specific standards goal is to “identify the sustainability-related risks and opportunities most likely to affect a company's financial condition (i.e., its balance sheet), operating performance (i.e., its income statement), or risk profile (i.e., cost of capital). All of these factors impact a company's current and future market valuation” (GRI and SASB, 2021: 5). This goal implies that the focus of the SASB's industry-specific standards is on the impact that social and environmental aspects can have on the value of companies, but not the impact the company has on the world.

This example illustrates how the reporting of a company could depend on the selected reporting frameworks. Although the essence of the NFRD is that reporting should include both perspectives, and therefore both approaches would be complementary, stakeholders must understand the considerations that guide the choice of one framework or the other. Flexibility must, therefore, be accompanied by a great deal of information and transparency so as not to generate confusion among stakeholders. While the SASB's industry-specific standards target investors that are worried about financial materiality, GRI standards are multi-stakeholder-oriented and focused on sustainable development. As long as the assumptions underlying each approach are clear and known, each set of standards can complement the others.

In 2017, the European Commission published Guidelines on Non-Financial reporting to help companies disclose environmental and social information under the NFRD. Among the most important aspects included in these guidelines, we can find the explanation of the six principles that should guide CS reporting. These principles include disclosing information that is (1) material, (2) fair, balanced, and understandable, (3) comprehensive but concise, (4) strategic and forward-looking, (5) stakeholder-oriented, and (6) consistent and coherent (European Commission, 2017). We summarise each of these in the following paragraphs.

The first principle, while it may be the most important, is probably determined too vaguely. This principle establishes that companies must disclose material information. As explained in the previous section, the concept of materiality is of great importance, but it is also extremely complex. In the field of accounting, Article 2(16) of the Accounting Directive (Directive 2013/34/EU) establishes that material information is “information where its omission or misstatement could reasonably be expected to influence decisions that users make based on the financial statements of the undertaking. The materiality of individual items shall be assessed in the context of other similar items”. In the context of non-financial information, the guidelines give each company the freedom to determine materiality. Specifically, the guidelines specify that “[c]ompanies may report on a wide range of potential issues. A company assesses which information is material based on its analysis of how important that information is in understanding its development, performance, position and impact. This materiality assessment should take into account internal and external factors” (European Commission, 2017:

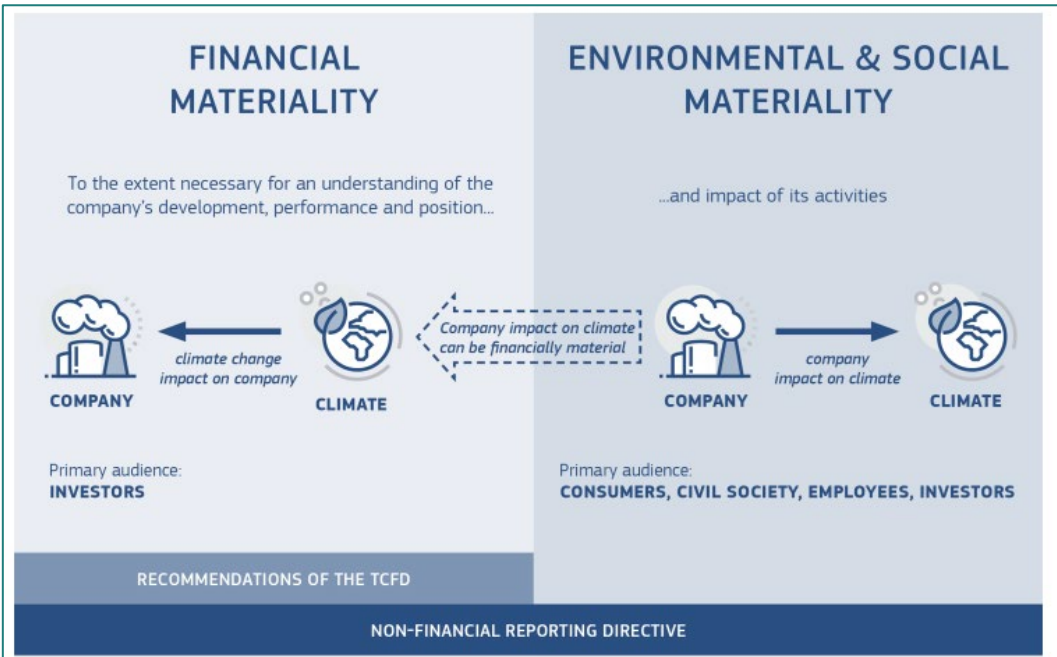
5). Again, like the flexibility in choosing reporting frameworks, the freedom to determine what material is makes it difficult to compare reports from different companies. An interesting aspect when explaining the materiality principle is the recognition that companies within an industry are likely to share similar ESG challenges. Thus, according to these guidelines, it may be appropriate to compare relevant non-financial disclosures among companies in the same sector. This practice is widespread among rating agencies, as they justify that materiality differs from one sector to another.

The second principle states that information must be fair, balanced, and understandable. This means that statements should consider favourable and unfavourable aspects, the information should be assessed and presented in an unbiased manner, and it should clearly distinguish facts from biases or interpretations (European Commission, 2017). The third principle states that information must be comprehensive, but concise. These guidelines return to the concept of materiality to clarify this principle. According to these guidelines, material disclosures are expected to provide a comprehensive picture of a company. This information must “help stakeholders understand the development, performance, position, and the impact of its activities” (European Commission, 2017: 8). However, at the same time, it must be concise and avoid immaterial information. The fourth principle state that information must be strategic and forward-looking. This means that the report must include information about the company’s business model, strategy, and implementation, as well as explain the implications of the reported information in the short, medium, and long term. The fifth principle is that the report must be stakeholder-oriented, that is, companies are expected to consider the information needs of all relevant stakeholders (and not only shareholders). Finally, the last principle is that information must be consistent and coherent. This means that the non-financial statement is expected to be consistent with other elements of the management report but must also enable users to understand and compare the information during the time.

These guidelines also highlight that companies can improve their comparability by disclosing high-quality and broadly recognised Key Performance Indicators (KPIs), such as metrics that are widely used in a sector or for specific thematic issues. The importance of KPIs in these guidelines is also shown through the fact that this document introduces many examples of KPIs along with the guidelines.

In 2019, the European Commission published new guidelines for the disclosure of climate-related information as part of the Action Plan on Financing Sustainable Growth. The premise of these guidelines is their flexibility. For example, these guidelines recognise that the content of climate-related disclosures may vary between companies according to several factors, including the sector of activity, geographical location, and nature and scale of climate-related risks and opportunities. These guidelines also recognise that a flexible approach is necessary regarding the methodologies and best practices in the field of climate-related reporting since these issues are evolving rapidly (European Commission, 2019a).

Figure 1. Double materiality perspective



Source: European Commission (2019a)

The guidelines on the disclosure of climate-related information integrated the Task Force on Climate-related Financial Disclosures (TCFD) recommendations to respond to the need of reporting financial material climate-related information. Specifically, these guidelines clarify that the materiality perspective of the NFRD covers both financial materiality and environmental and social materiality, whereas the TCFD only has a financial materiality perspective (see Figure 1). The double materiality perspective included in the essence of NFRD means that reporting must reference both (European Commission, 2019a):

1. The company's "development, performance, [and] position" which indicates financial materiality, in the broad sense of affecting the value of the company.
2. The reference to "impact of [the company's] activities" which indicates environmental and social materiality.

While financial materiality is typical of most interest to investors, environmental and social materiality is typical of most interest to citizens, consumers, employees, business partners, communities, and civil organisations.

In conclusion, although the NFRD was a very important step and supplementary guidelines have tried to clarify the requirements for companies deriving from it, the great flexibility the Directive provided both in the choice of reporting frameworks and in the specification of materiality (even when the guidelines clarified that double materiality is needed) made it difficult for the reporting of different companies to be comparable. Moreover, the universe of companies that fall under this directive is limited. Currently, this directive is still in force, but efforts are being made to overcome these problems, and new directives are expected to be approved soon.

3.2 SFDR and Delegated Regulations

In 2019, the European Parliament and Council adopted the SFDR which established sustainability-related disclosure requirements for financial market participants, financial advisers, and financial products (Regulation EU 2019/20881). This regulation aimed "to improve sustainability-related disclosures, comparability of the disclosures for end investors, and reduce the occurrence of adverse sustainability impacts and greenwashing" (European Commission, 2022a: 1), which ultimately supports the financial system's transition towards a more sustainable economy.

Additionally, in April 2022, the European Commission adopted the regulatory technical standards set out in the Delegated Regulation to be used by financial market participants when disclosing under the SFDR. This regulation specifies the exact content, methodology, and presentation of information to be disclosed to improve quality and comparability. Under these rules, financial market participants must provide detailed information on how they address and reduce the negative impacts that their investments may have on the environment and society (European Commission, 2022b). Therefore, this regulation could help to make dual materiality more present in the capital markets, and consequently, in the ESG rating and metrics provided by rating agencies. The SFDR states the reduction of greenwashing as one of its objectives, that is, the reduction of practices that appear to be environmentally responsible, but are not. In any case, CS/ESG investors that are values-driven, in the sense that they focus on investments that reduce harm to society and the natural environment (rather than focusing solely on financial aspects), will have more standard and transparent information to choose CS/ESG investment products that most respect their investment preferences.

The requirements will now be subject to scrutiny by the European Parliament and Council. They are scheduled to be applied from 1 January 2023 (European Commission 2022b).

3.3 EU Taxonomy for sustainable activities

In 2020, the European Parliament and Council adopted the EU Taxonomy Regulation (Regulation (EU) 2020/852). The creation of a unified EU classification system or taxonomy is one of the most important and urgent actions included in the Action Plan on Financing Sustainable Growth (European Commission, 2018). Through this regulation, the European Parliament and Council mandated the European Commission to provide, in delegated acts, technical screening criteria for determining whether an economic activity can be considered to contribute substantially to environmental objectives. Specifically, the Taxonomy Regulation established six environmental objectives (Regulation (EU) 2020/852):

1. Climate change mitigation
2. Climate change adaptation
3. The sustainable use and protection of water and marine resources

4. The transition to a circular economy
5. Pollution prevention and control
6. The protection and restoration of biodiversity and ecosystems.

The EU Taxonomy is a classification system based on scientific criteria establishing a list of environmentally sustainable economic activities. The aim is to provide companies, investors, and policymakers with appropriate and clear definitions of which economic activities can be considered environmentally sustainable. This clarity is necessary to avoid greenwashing, help companies become more climate-friendly, mitigate market fragmentation, and help shift investments where needed (European Commission, 2022c). The EU Taxonomy also plays an important role in creating the EU Green Bond Standard and EU Ecolabel for certain retail financial products (European Commission, 2021a).

For the EU Taxonomy to be successfully implemented by financial firms, companies must begin to provide transparency around their taxonomy-aligned activities by reporting in widely distributed, publicly available documents (Technical Expert Group on Sustainable Finance, 2019). Consequently, one of the main objectives of EU Taxonomy is to increase transparency in CS/ESG reporting. Thus, Article 8 of the Taxonomy Regulation requires companies under the NFRD (and additional companies brought under the scope of the proposed CSRD) to report certain indicators on the extent to which their activities are sustainable, as defined by the EU Taxonomy. Specifically, these companies disclose the proportion of their turnover, capital expenditures, and operating expenditures that are derived from or associated with economic activities that qualify as environmentally sustainable. By annually publishing their KPIs on activities considered environmentally sustainable according to the EU Taxonomy, companies will show their trajectory towards environmental sustainability objectively to investors and the public (European Commission 2022c).

Once companies and financial market participants disclose their proportion of taxonomy-aligned green activities, it will allow for the comparison of companies and investment portfolios based on this proportion. Taxonomy offers many additional opportunities to ensure transparency in terms of sustainability, which are not mandatory. For example, companies can reliably use the EU Taxonomy to plan their climate and environmental transitions, and financial market participants can use the EU Taxonomy to design credible green financial products. Thus, the EU Taxonomy can guide market participants in their investment decisions, but it does not prohibit investment in any activity; “there is no obligation on companies to be Taxonomy-aligned, and investors are also free to choose what to invest in” (European Commission 2021a: 4).

The first Delegated Act on Sustainable Activities for Climate Change Adaptation and Mitigation Objectives was published in December 2021 and has been applicable since January 2022. The criteria included in this delegated act were developed based on recommendations by the Technical Expert Group and following public feedback and advice from the Platform on Sustainable Finance (European Commission, 2021a).

Therefore, at this time, the EU Taxonomy only includes some green activities that can make a substantial contribution to environmental objectives, but not all environmental and social activities are yet covered by the EU Taxonomy. The EU Taxonomy is a living document that has been adapted over time (European Commission, 2021a). Additional reporting under the Taxonomy Regulation for the other four objectives (i.e., the use and protection of water and marine resources, circular economy, pollution prevention and control, and protection and restoration of biodiversity and ecosystems) is planned to be mandatory from January 2023 (European Commission, 2022c).

Finally, to make it easier for a variety of users to access the EU Taxonomy, the Commission has facilitated the EU Taxonomy Compass, which enables users to check which activities are included in the EU Taxonomy (taxonomy-eligible activities), to which objectives they substantially contribute, and which criteria they must meet. It is important to note that minimum safeguards (social standards) must be met for economic activities to be considered taxonomically aligned. The EU Taxonomy Compass⁵ also aims to make it easier to integrate the criteria into business databases and other IT systems (European Commission, 2022c).

As companies begin to report according to the taxonomy classifications, rating agencies, which play an important role in standardising information from different sources and jurisdictions, must be prepared to provide financial institutions and other stakeholders with comparable global datasets for capital allocation decisions. For example, data on the EU Taxonomy can already be found in the Bloomberg database.

⁵ The EU Taxonomy Compass is available at <https://ec.europa.eu/sustainable-finance-taxonomy/index.htm>.

3.4 CSRD

In April 2021, the Commission adopted a proposal for a CSRD. This newly proposed directive is a response to some of the problems detected in the NFRD, such as the fact that companies did not provide information on aspects valued by investors and other stakeholders, or the difficulty of comparing companies. The European Commission recognised that the new requirements would incur additional costs for companies; however, “it aims to reduce these costs over the medium to long term by building consensus around the essential information that companies should disclose” (European Commission 2021a: 9).

This proposal extends the scope of application to all large companies and companies listed on regulated markets (except listed micro-companies). This means that the CSRD applies to some 49,000 companies, compared to approximately 11,000 that are subject to the NFRD. Although the Commission includes small and medium enterprises (SMEs), given the special characteristics of these companies, it also proposes the development of separate, proportionate standards for SMEs in parallel with the new reporting standards proposed for large companies. SMEs listed on regulated markets could use these simpler standards to meet their legal reporting obligations, whereas non-listed SMEs can choose to use them voluntarily.

The CSRD introduces more detailed reporting requirements and mandatory reporting according to EU mandatory sustainability standards and requires auditing (assurance) of the information reported. As previously stated, the CSRD also aims to ensure that the reporting requirements for companies are consistent with the UE Taxonomy through the proposed sustainability reporting standards. Finally, the CSRD is required to ensure that all information is published as part of companies’ management reports and disclosed in a digital, machine-readable format into a single European access point (European Commission, 2021a).

The timeline in the proposal assumes the elaboration of draft sustainability reporting standards in parallel with the legislative process of the proposed CSRD. The European Financial Reporting Advisory Group (EFRAG) will be responsible for developing these drafting standards using proper due process, public oversight, transparency, and the expertise of relevant stakeholders. EFRAG is a private association but is primarily financed by the EU and based on a public-private partnership model.

The CSRD proposal aims to help achieve worldwide convergence and harmonisation of sustainability reporting standards. To this end, the proposal states that it considers several important international initiatives in place, such as the work of the TCFD, GRI, SASB, International Integrated Reporting Council (IIRC), Climate Disclosure Standards Board, and Carbon Disclosure Project (CDP).

3.5 Concluding remarks

The EU endorsed a clear direction for sustainable growth by committing to the SDGs and climate-related goals through the Paris Agreement and translating them into the European Green Deal and the Action Plan on Financing Sustainable Growth. These commitments provide signals to companies and investors about future CS/ESG requirements, but only if there is a clear regulatory context will it enable companies and investors to make the shift towards a more sustainable orientation. The EU Taxonomy for Sustainable Activities, SFDR, Delegated Regulation, and the Proposal for a CSRD are important tools for accurately promoting CS reporting and ESG market transparency.

EU regulations have also demonstrated a strong commitment to preventing greenwashing situations. Together with the above-described regulations, such as the SFDR and the EU Taxonomy Regulation which help avoid greenwashing in the financial market, the EU has launched many initiatives to try to eradicate this major problem. For example, to reduce the risk of greenwashing, the European Green Deal states that “[c]ompanies making “green claims” should substantiate these against a standard methodology to assess their impact on the environment and that [t]he Commission will step up its regulatory and non-regulatory efforts to tackle false green claims” (European Commission, 2019b: 8). In addition, the Circular Economy 2020 Action Plan commits that “[t]he Commission will also propose that companies substantiate their environmental claims using Product and Organisation Environmental Footprint methods” (European Commission, 2021c: 5). The Circular Economy 2020 Action Plan also announced other policies, such as reviewing EU consumer legislation to avoid companies giving a false impression of their environmental impact or benefits.

Greenwashing is a major problem, as it misleads market players and does not give due advantage to companies that strive to make their products and activities more sustainable. Therefore, these, and the future efforts of the EU, are necessary to eradicate this misconduct.

4 International frameworks for sustainability measurement and disclosure

This section provides an overview of existing general and specific international frameworks followed by ESG rating agencies to measure and disclose relevant CS aspects. International sustainability frameworks serve as standards that provide guidelines for best-in-class sustainability practices (Siew, 2015) and conventions for measuring and disclosing sustainability impacts (Escrig-Olmedo et al., 2010). The international frameworks are divided into general international frameworks that jointly address the sustainability dimensions, and into specific international frameworks that only focus on a specific sustainability issue or dimension. Table 3 illustrates the main sustainability frameworks that are currently used to develop ESG rating methodologies.

Table 3. Main international sustainability frameworks

General sustainability frameworks	Specific environmental frameworks	Specific social frameworks
GRI	CDP	ILO standards
IFC performance standards	GHG	UN UDHR
IIRC	SBTi	
IRIS+	TCFD	
ISO 26000		
OECD Guidelines		
SASB		
SDGs		
UNGC		
UN PRI		

Source: Elaborated by the authors

4.1 General international sustainability frameworks

GRI (Global Reporting Initiative) (1997). It is a voluntary globally reporting framework for organisations (small and large, public and private) to communicate their CS impacts in a structured and transparent way. It was created in 1997 by the Coalition for Environmentally Responsible Economies (CERES). The framework includes universal standards for environmental, social, and economic criteria, sector standards with specific guidelines for 40 sectors to consistently report sector-specific impacts, and topic standards. The sector standards list topics that are likely to be material for most companies operating in a given sector and then, indicate relevant disclosures to report on such topics. The topics’ standards help organisations prioritize the most significant impacts for reporting and, determine an organisation’s material topics. Reports following the GRI Standards must group the topics into four major sections (vision and strategy, profile, governance structure, and performance indicators) and contain a GRI content index to locate all of the disclosures that the organisation has used to report on its material topics. The index helps make information traceable. It also helps stakeholders in identifying the topics not being reported (GRI, 2021).

International Finance Corporation (IFC) performance standards (2006). The IFC’s Environmental and Social Performance Standards are an international voluntary benchmark of environmental and social risk identification and management. The standards help in the assessment of environmental and social responsibility associated with each investment before the investment decision and monitor it throughout the investment period. It consists of eight different performance standards that should be met along the life of an investment: (1) risk management of environmental and social impact performance, (2) labor and working conditions performance, (3) resource efficiency and pollution prevention performance, (4) community health, safety, and security performance, (5) land acquisition and involuntary resettlement performance, (6) biodiversity conservation and sustainable management of living natural resources performance, (7) indigenous peoples performance, and (8) cultural heritage (IFC, 2012).

International Integrated Reporting Council (IIRC) (2010). Previously known as the International Integrated Reporting Committee, IIRC is a voluntary international reporting framework that laid the foundation for a new reporting model enabling organisations to communicate their created value in a standardized way. This initiative takes a broad definition of value, which not only includes economic or financial value, but also social and environmental value to encompass the interconnections between environmental, social, governance, and financial factors in decisions that affect a company’s long-term performance (IIRC, 2021).

IRIS+ (2018). The IRIS+ is an international voluntary framework related to impact investment that was developed by Global Impact Investing Network. This framework aims to help investors to maximize the positive impact of their investments while minimizing the negative impacts of their investments. With that purpose, the framework helps to integrate environmental and social factors into investment decisions, besides risk and return. It provides guidelines on how to measure, manage, and optimize the impact of investments. (Global Impact Investing Network, 2018).

ISO 26000 (2010). It is an international standard that provides guidance on the principles underlying social responsibility and its integration into organisational behaviors and actions. It also focuses on results and improvements in CSR. The standard is intended to be of universal application to all types of companies regardless of their legal structure, nature, and size. The standard was developed by experts on social responsibility from more than 90 countries and over 40 international organisations and regional representatives, including governments, non-governmental organisations, industry representatives, consumers, workers, and academics. Although its description emphasizes social responsibility, the standard includes social, environmental, and governance issues. Specifically, it entails seven core subjects that describe socially responsible areas: (1) organisational governance, (2) human rights, (3) labor practices (e.g., working conditions, and social dialogue), (4) natural environment (e.g., contamination prevention, sustainable use of resources), (5) fair operating practices (e.g., anti-corruption, property rights), (6) consumers issues (e.g., sustainable consumption, consumers' protection), (7) community involvement and development (e.g., education and culture, health, social investment) (ISO 2600, 2021)

OECD Guidelines for Multinational Enterprises (2011). The guidelines are recommendations of governments for international investment and multinational enterprises operating in and from adhering countries to promote responsible business conduct. Specifically, the guidelines ensure that companies have positive economic, environmental, and social impacts worldwide—that is, in all the countries they operate and invest in. The guidelines address aspects related to human rights, responsible employment, and industrial relations, environmental management and preservation, bribery and extortion combating, consumers' interest protection, science and technology laws compatibility, anti-competitive practices, and taxation. These guidelines provide non-binding standards and principles consistent with applicable laws and internationally responsible recognized standards. The application of the guidelines by the companies is supported by agencies established by the adhering governments, which are the National Contact Points (NCP) (OECD, 2020).

Sustainability Accounting Standards Board standards (SASB) (2018). The standards aim to establish connections between companies and investors concerning the financial impacts of sustainability. The main purpose is to help companies identify, manage, and communicate sustainability-related risks that might affect their financial performance, that is, financially material sustainability information. SASB standards are industry-specific with a total of 77 standards designed to be useful tools for investors' financial decisions. Hence, the target audience is investors. Each industry-specific standard includes relevant material sustainability aspects and their associated accounting metrics. SASB provides an implementation guide (last updated in 2019) for companies and an engagement guide for investors on issues to discuss with companies respecting financially material issues. In June 2021, the SASB merged with IIRC to form the Value Reporting Foundation (VRF).

Sustainable Development Goals (SDGs) (2015). The SDGs, launched by the United Nations, are the main action international framework to tackle societal grand challenges and ensure a sustainable future. It consists of an agenda consisting of 17 SDGs and 169 related targets to be met by 2030. The agenda 2030 is the result of the agreement between 193 countries and cross-sector collaborations among multiple stakeholders, including government representatives, sector experts, companies, and civil society. Specifically, the 17 SDGs comprise: (1) no poverty, (2) zero Hunger, (3) good health and well-being, (4) quality education, (5) gender equality, (6) clean water and sanitation, (7) affordable and clean energy, (8) decent work and economic growth, (9) industry, innovation, and infrastructure, (10) reduced inequalities, (11) sustainable cities and communities, (12) responsible consumption and production, (13) climate action, (14) life below water, (15) life on land, (16) peace, justice, and strong institutions, and (17) partnerships for the goals. The agenda also acknowledges the interconnected nature of the SDGs and the need for simultaneous and urgent action by all actors in society.

United Nations Global Compact (UNGC) (2000). The UNGC is a voluntary corporate responsibility initiative to promote companies' alignment and collaboration for ensuring the consideration of ten principles across four main areas: human rights, labor, environment, and anti-corruption. The ten principles are derived from the Universal Declaration of Human Rights, International Labour Organization (ILO)'s Declaration on Fundamental Principles and Rights at Work, Rio Declaration on Environment and Development, and the United Nations Convention Against Corruption. Specifically, these principles are (UNGC, 2010: webpage).

- “Principle 1: Businesses should support and respect the protection of internationally proclaimed human rights. (Human rights).
- Principle 2: Make sure that they are not complicit in human rights abuses. (Human rights).
- Principle 3: Businesses should uphold the freedom of association and the effective recognition of the right to collective bargaining. (Labour).
- Principle 4: The elimination of all forms of forced and compulsory labour. (Labour).
- Principle 5: The effective abolition of child labour. (Labour).
- Principle 6: The elimination of discrimination in respect of employment and occupation. (Labour).
- Principle 7: Businesses should support a precautionary approach to environmental challenges. (Environment).
- Principle 8: Undertake initiatives to promote greater environmental responsibility. (Environment).
- Principle 9: Encourage the development and diffusion of environmentally friendly technologies. (Environment).
- Principle 10: Businesses should work against corruption in all its forms, including extortion and bribery. (Anti-corruption).”

United Nations Principles of Responsible Investment (UN PRI) (2005). The six PRIs were developed by investors and for investors to ensure a sustainable global financial system. Specifically, these principles were developed by 20 investors from institutions in 12 countries supported by a group of 10 experts from the investment industry, intergovernmental organisations, and civil society. The six principles offer recommendations for possible actions by integrating ESG issues into the investment practice. In 2021, the PRI are supported by a global base of around 4000 signatories that represent the world’s large and professionally managed investments. The six PRI are:

- “Principle 1: We will incorporate ESG issues into investment analysis and decision-making processes.
- Principle 2: We will be active owners and incorporate ESG issues into our ownership policies and practices.
- Principle 3: We will seek appropriate disclosure on ESG issues by the entities in which we invest.
- Principle 4: We will promote acceptance and implementation of the principles within the investment industry.
- Principle 5: We will work together to enhance our effectiveness in implementing the principles.
- Principle 6: We will each report on our activities and progress towards implementing the principles.”

4.2 Specific international environmental frameworks

Carbon Disclosure Project (CDP) (2003). The CDP is an independent not-for-profit corporation that has created a large and global-scale database of environmental impacts of companies and cities, such as Greenhouse Gas (GHG) emissions, water use, and climate change. It is the international standard used for GHG emissions. The number of companies joining the CDP has increased, with more than 13,000 companies representing over 64% of the global market capitalization in 2021. The CDP scores companies from D to A based on the quality and completeness of their disclosures, awareness, management of environmental risks, leadership, and best practices on environmental protection.

The GHG Protocol (2001). The GHG protocol provides international standards that consist of frameworks for companies, governments, other organisations, and even cities and countries, to measure, manage and report their greenhouse emissions. The first edition of the protocol was created in 2001 through a collaboration between the World Business Council for Sustainable Development (WBCSD) and the World Resources Institute (WRI) to tackle climate change. For companies, the GHG protocol entails four main standards. First, the GHG Protocol Corporate Accounting and Reporting Standard provides step-by-step guidance for companies and other

organisations that are making their GHG emissions inventory. Second, the GHG Protocol Corporate Value Chain Standard is a tool to assess the entire value chain to determine the points of higher emissions in order to focus on reduction actions. Third, the GHG protocol Product standard is a framework to assess the full life cycle emissions of a product to focus efforts on the stages having the greatest GHG emissions. Finally, the GHG Project standard is a comprehensive accounting tool for quantifying GHG emissions and fostering climate change mitigation projects (WBCSD/WRI, 2004).

Science-Based Targets: Ambitious corporate climate action (SBTi) (2015). The SBTi is an international initiative that supports innovation to contribute to a zero-carbon economy. The SBTi is the result of a partnership between CDP, the UNGC, WRI, and the World Wide Fund for Nature (WWF). The SBTi provides a pathway for companies to reduce GHG emissions by setting science-based targets. Targets are considered “science-based” as long as they are in line with the goals of the Paris Agreement, which promotes limiting global warming to well below 2°C above pre-industrial levels and pursuing efforts to limit warming to 1.5°C. The SBTi targets companies from all sectors to join the movement, especially companies from the sectors having the highest emissions.

Task Force on Climate-Related Financial Disclosures (TCFD) (2017). The TCFD was created by the Financial Stability Board to improve and increase reporting on climate-related financial information. Specifically, the TCFD provides recommendations on the types of information that companies should report to support investors’ assessments of climate change-related risks, capital allocation, and strategic investments. The main logic behind the TCFD is that financial markets need comprehensive, clear, and high-quality information on the impacts of climate change to identify risks and opportunities. The recommendations revolve around four pillars: governance, strategy, risk management, and metrics and targets (TCFR, 2017).

4.3 Specific international social frameworks

International Labour Organization (ILO) Standards (1919). Since 1919, the ILO has developed a system of international labour standards aiming at securing equal opportunities for women and men to obtain decent work and fair wealth. Specifically, the ILO standards address 25 issues such as child labour, working conditions, gender equality, freedom of association, labour migration, occupational safety and health, social dialogue, and labour relations, among others. The main premise behind the ILO standards is that work is part of an individual’s daily life and it is crucial for a person’s dignity, well-being, and human development (ILO, 2019).

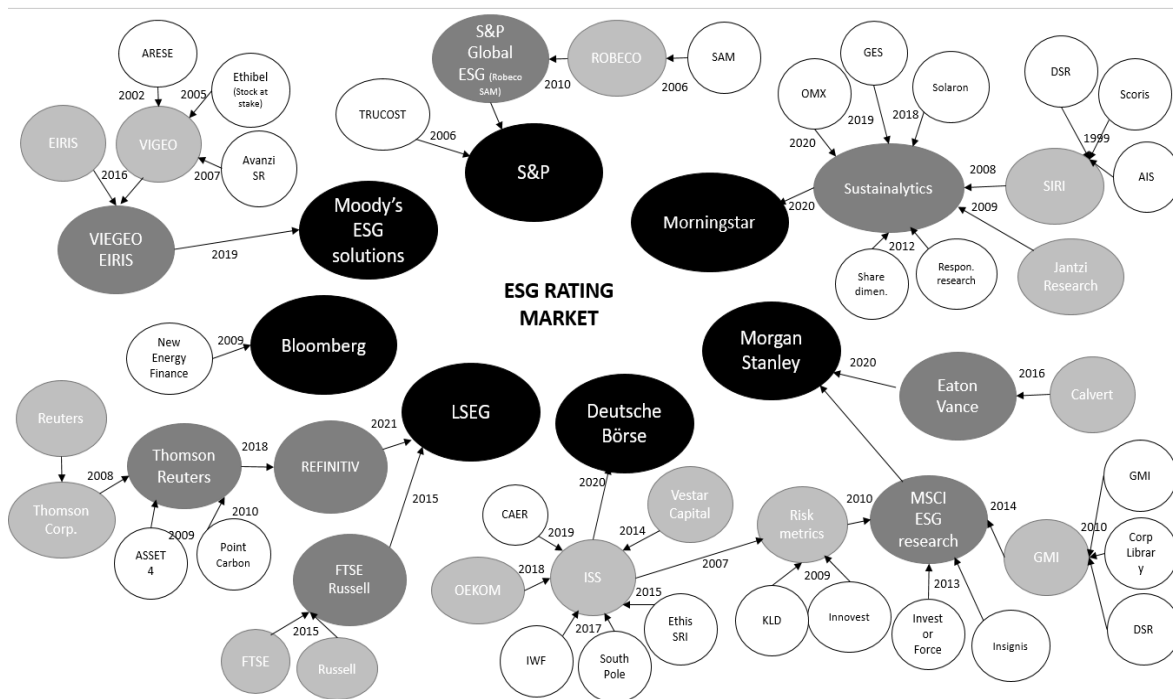
United Nations Universal Declaration of Human Rights (UDHR) (1948). The UDHR, proclaimed on December 10, 1948, in the United Nations General Assembly in Paris, is an international standard that sets the foundation of international human rights law. The UDHR is considered a milestone in the history of human rights as it was the first time when fundamental human rights were agreed to be universally protected. Specifically, it includes 29 articles that recognize basic universal rights and fundamental freedoms inherent to all human beings that ensure that every person is born free and equal in dignity and rights whatever their nationality, gender, ethnic origin, language, and so on. Representatives from all regions of the world, with different cultural and legal backgrounds, participated in the elaboration of the document. The document has been translated into more than 500 languages. Furthermore, the UDHR has been acknowledged as the basis for the adoption of over seventy legally binding international human rights treaties, applied globally (UN, 2015).

5 ESG market evolution: The main rating agencies

The ESG rating market is a dynamic and changing market that has developed considerably over the past thirteen years. Most agencies have been increasingly offering a diversified range of complementary products and services to investors in addition to their ESG ratings and indices. There has also been a proliferation of rating agencies entering the scene since this market emerged.

However, many rating agencies have also disappeared, especially in recent years where a concentration of the sector is observed. First, the number of partnerships between rating agencies has increased, and second, the trend of mergers and acquisitions among rating agencies and data providers is growing (Avetisyan and Hockerts, 2017). The ESG market is becoming concentrated around the largest international financial rating agencies that have taken over local rating agencies to expand their geographic coverage, merged to improve their competitive position, and have acquired specialised rating agencies (for example, specialised in the evaluation of sustainability performance, risk assessments, etc.). Today, the ESG rating market is dominated mostly by seven big clusters of rating agencies: Moody's ESG Solutions (Vigeo Eiris), Bloomberg, London Stock Exchange Group (LSEG) (Refinitiv-Eikon and Financial Times Stock Exchange (FTSE) Russell), Morningstar Group (Sustainalytics), MSCI (MSCI ESG Research and Calvert Research and Management), Standard & Poors (S&P) (S&P Global ESG and Trucost), and Deutsche Börse (ISS-Oekom). These rating agencies are international mainstream financial services agencies rather than specialised research agencies that traditionally catered to responsible, ethical, and sustainable investors. Figure 2 illustrates an overview of the main mergers and acquisitions in the last decades until the concentration of the ESG rating market into the seven large rating clusters.

Figure 2. Main mergers and acquisitions in the ESG rating market



Source: Elaborated by the authors

5.1 Vigeo EIRIS (Moody's ESG Solutions)

Vigeo EIRIS is the largest European ESG rating agency created in 2016 as a result of a merger between two established European ESG research agencies: Vigeo (France) and EIRIS (Ethical Investment Research Service) foundation (United Kingdom). After the merger, the shareholders were distributed as investors (63.3%), NGOs and unions (24%), and companies (13.7%). Vigeo was created in 2002 after the acquisition of the French ARESE, and turned into the Vigeo Group after taking over the Belgium Ethibel (Stock at Stake) independent consultancy association on socially responsible investment in 2005, and the Italian Avanzi SRI research in 2007. The EIRIS Foundation was created in 1983 out of a group and charities with concerns about investing in companies contributing to Apartheid South Africa. Since its foundation, it has functioned as an independent not-for-profit corporation providing research in responsible investment, and developing sustainability criteria and ratings for

investors. Since 2019, Vigeo EIRIS is an affiliate of Moody's ESG Solutions Group, a business unit of the credit rating agency Moody's corporation focused on providing ESG measures, sustainability ratings, and promoting sustainable finance. The Vigeo EIRIS brand name is being withdrawn and replaced with Moody's ESG Solutions. In addition, Moody's acquired Four Twenty Seven in 2019, a leading provider of market intelligence on physical climate risk.

5.2 Bloomberg

Bloomberg is a global provider of business and financial data, news, and insight. Bloomberg terminal was released in December 1982 and consisted of a computerized system to provide real-time market data and financial analytics to Wall Street firms. In 1990, Bloomberg Business News was launched. In 1993, the Bloomberg.com financial portal was created to offer information and news about markets and access to the Bloomberg Terminal. Bloomberg entered the ESG market in the late 2000s with the development of its own ESG data for investors that supplemented its database of financial information. In addition, in 2009, Bloomberg acquired New Energy Finance (UK), an information provider specialised in renewable energy and the carbon market. In addition, to offer its proprietary ESG scores, Bloomberg has also established partnerships with other ESG rating agencies to provide its users with ESG data such as Sustainalytics (2014), S&P Global ESG (2016), and MSCI ratings (2020). Bloomberg has continued to operate as a private company since its founding, being mostly owned by its founder Michael Bloomberg.

5.3 Refinitiv and FTSE Russell (LSEG)

Thomson Reuters is a Canadian international information agency that resulted from Thomson Corporation's acquisition of Reuters in April 2008. Reuter was a UK-based news agency providing information to the media and financial markets. It has its origins in 1850 when Julius Reuter started a stock price information service through carrier pigeons. Thomson Corporation (Canada), one of the world's largest information companies, was created in 1989 after a merger between International Thomson Organization Ltd (ITOL) and Thomson Newspapers. In November 2009, Thomson Reuters took over Asset4 (Switzerland) and its global ESG database. This company, founded in 2003, specialised in research combining both financial and non-financial information. It was the first agency to supply raw ESG data to investors. This acquisition helped Thomson Reuters to consolidate in the ESG market since its entry in the late 2000s. In 2010, Thomson Reuters acquired Point Carbon (Norway), a global information and news provider focused on the energy and carbon market, founded in 2000. In addition, in 2010, Thomson Reuters launched its EIKON platform with ESG data, news, and analytics. In 2018, Thomson Reuters became Refinitiv. In January 2021, Refinitiv was acquired by LSEG plc. The LSEG is a UK-based financial information and stock exchange company founded in 1801 in London.

FTSE Russell is a British division and a brand of LSEG created in 2015, after the integration of the FTSE Group and Russell indexes series, following the acquisition of the company Frank Russell in 2015. In 2015, FTSE also acquired the data company Mergent. FTSE had previously collaborated with EIRIS to develop the FTSE4good indices, launched in 2001, until 2013 when FTSE decided to end the agreement with EIRIS to develop its own metrics to power the indexes. The FTSE4good index series is a set of indices that benchmark companies based on ESG factors.

5.4 Sustainalytics (Morningstar Group)

Sustainalytics is an ESG rating agency founded in 2008 from the consolidation of the former members of the SIRI Company created in 1999: Dutch Sustainability Research (Netherlands), Scoris (Germany), and Analistas Internacionales en Sostenibilidad (Spain). In 2009, Sustainalytics merged with Jantzi Research Inc. (Canada) to form Sustainalytics. Jantzi Research was a Canadian ethical investment company created in 1992 that launched the Jantzi Social Index (JSI) (the 60 largest Canadian companies based on their ESG) in 2000 in partnership with Dow Jones Indexes and State Street Global Advisors (SSGA). Sustainalytics acquired Responsible Research (Singapore) and Share Dimension (the Netherlands), a software development company specialising in state-of-the-art business and predictive analytics applications in May 2012, Solaron Sustainable Services (India) in 2018, GES International (Italia) in 2019, and OMX (Sweden) in 2020. In 2016, it partnered with Morningstar to develop the Morningstar ESG scores based on the Sustainalytics ESG research rating. In 2018, Sustainalytics launched the ESG risk ratings. Since 2020, Sustainalytics is part of the Morningstar Group (US).

5.5 MSCI ESG research and Calvert Research and Management

MSCI ESG Research, located in New York (US) belongs to the MSCI Group and its origins date back to 1988. Their first ESG index, MSCI KLD 400 Social Index, was launched in 1990 in collaboration with KLD Research & Analytics. The company ratings based on industry material ESG risks started in 1999. MSCI ESG Research was created as a result of absorbing several ESG research providers. In March 2010, MSCI acquired the RiskMetrics Group (US), a risk management company created in 1994 out of J. P. Morgan. RiskMetrics had previously acquired ISS (Institutional Shareholder Services) in 2007, Innovest Strategic Value Advisors (US) in February 2009, and KLD (US) in November 2009. The ISS agency focused on governance consultancy, founded in 1985, acquired IRRC (Investor Responsibility Research Center) in 2005. Innovest Strategic Value Advisors and KLD were two ESG providers with alternate methodological approaches. Innovest Strategic Value, founded in 1995, was more financially and corporation driven. KLD, founded in 1988, was more society driven. In 2013, InvestorForce (US), a performance reporting tool, and Insignis, a provider of automated financial data collection and management, were bought. In March 2014, MSCI sold its governance business unit ISS to Vestar Capital Partners but acquired the GMI ratings (US), a provider of corporate governance research and ratings. GMI ratings were created after the merger of Governance Metrics International, Corporate Library, and Audit Integrity, in 2010. These acquisitions show the reorientation of MSCI towards analysis rather than consulting activities. In 2019, MSCI ESG research acquired Carbon Delta (Switzerland) which addresses climate corporate resilience.

Calvert Research and Management is part of Morgan Stanley Investment Management, the asset management division of MSCI, since 2020. Calvert Investment Management was established in the US in 1976. In 1982, the Calvert Social Investment Fund (CSIF) was introduced, the first fund to integrate ESG factors with financial analysis. In 2000, the Calvert Social Index was launched. Since its foundation, Calvert Research and Management has partnered with nonprofit corporations to promote sustainable investment. For example, it was a founding signatory member of the UN PRI. In 2016, it was acquired by Eaton Vance, one of the oldest investment companies in the US (founded in 1924). In 2020, Eaton Vance, and then, Calvert Research and Management Company, were acquired by MSCI.

5.6 S&P Global ESG and Trucost (S&P Global)

RobecoSAM was an international investment company located in Zurich (Switzerland) formed as a result of a merger between Robeco Switzerland and SAM in 2010, and later renamed RobecoSAM in 2013. SAM (Sustainable Asset Management) was founded in Zurich in 1995, focusing exclusively on sustainable investment. In 1999, it partnered with Dow Jones to launch the Dow Jones sustainability indexes (DJSI), the world's first family of sustainability indexes. In 2006, it was acquired by the Dutch asset manager corporation Robeco. Rotterdamsch Beleggings Consortium, later shortened to Robeco, was founded in 1929 by seven Rotterdam businessmen who formed a syndicate to invest peoples' savings and manage money collectively just after the Wall Street Crash. In 2019, the giant S&P global acquired RobecoSAM business unit from the Robeco group and took over the SAM ESG rating, changing the name to S&P Global ESG.

Trucost Plc started as a UK-based environmental research business aiming to help companies to understand the true cost of business by putting a financial cost to natural resources use and pollutants considering both direct and indirect company activities. In October 2016, S&P Dow Jones Indices acquired a controlling stake in Trucost. Currently, S&P Global Trucost offers different products and services such as the Trucost Environmental database, The Trucost Climate Change Physical Risk, and The Trucost SDG Evaluation Tool.

5.7 ISS-OEKOM (Deutsche Börse)

In 2014, Vestar Capital Partners acquired ISS from MSCI ESG research. ISS has been absorbing other companies such as Ethix SRI Advisors (Sweden) in 2015, South Pole Group (Switzerland), and IW Financial (US) in 2017, three ESG specialised agencies. In 2018, ISS acquired OEKOM Research (Germany), an ESG provider founded in 1993 as part of Ökom Verlag. OEKOM built the Global Challenges Index in 2007 at the request of the BÖAG Börsen Company. In 2019, the local agency Centre for Australian Ethical Research (CAER) was acquired. CAER (Australia and New Zealand) was established in 2000 as an independent non-profit organisation developing the ASZ 200 Index that covered the ESG analysis of the largest 300 Australian groups and smaller companies from New Zealand and the Pacific. CAER analyzed the largest Australian 300 for EIRIS following its methodology. In 2020, ISS was absorbed by Deutsche Börse, but continues to operate as an independent data provider named ISS ESG.

6 Overview of ESG ratings, metrics, and indices

This section provides an overview of the most prominent and frequently used ESG ratings, metrics, and indices provided by the main ESG rating agencies.

6.1 Main ESG ratings and metrics

Although it is estimated that there are more than 600 ESG ratings and rankings globally, according to the last report “rate the raters” (Sustainability, 2020), investors primarily rely on ten ESG ratings: Moody’s ESG Solutions Score (formerly Vigeo EIRIS ESG Scores), Bloomberg ESG Scores, Refinitiv ESG data, FTSE Russell ESG Ratings, Sustainalytics ESG Risk Rating, MSCI ESG Ratings, S&P Global ESG Score, ISS ESG Corporate Rating, ISS Governance QualityScore, and the CDP Climate, Water, and Forests scores. The “Rate the raters” research series was launched in 2010 by the institute SustainAbility to examine which ESG data is used by investors. It further explored how the investors use the ESG data, and their opinions about its quality. These ratings relate to the major ESG rating agencies that we identified in section 4 on the evolution of the ESG market.

Following this report, the subsequent sections depict and assess the ESG ratings predominantly used by investors. We excluded the ISS Governance QualityScore, and the CDP Climate, Water, and Forests scores from our analysis as they are not global ESG ratings. The former focused only on the governance dimensions, while the latter, rates only the natural resource impact. Hence, they are not comparable to the other eight ESG ratings that simultaneously cover ESG criteria.

6.1.1 Moody’s ESG Solutions (Vigeo EIRIS)⁶

Moody’s ESG Solutions, formerly known as Vigeo EIRIS, covers a universe of more than 5,000 companies from Europe, North America, Asia Pacific, and Emerging market regions listed on the major stock exchanges worldwide. Although Vigeo EIRIS was created in 2015 as a consequence of the merger between the two rating agencies, the dataset contains ESG data from 2003, although for a more limited number of companies. Their dataset also includes approximately 5,000 additional companies that have voluntarily requested their evaluation. Under request, Moody’s ESG Solutions also offers proxy scores for any other company through the use of their predictor score tool. Moody’s ESG Solutions rates the sustainability performance of companies based on their own ESG metric that can be accessed through their extranet platform (DataLab).

Moody’s ESG Solutions Score is calculated using both public disclosure information such as corporate annual reports, public stakeholder sources (e.g., business and human resources data center, OECD contact point), the press material of FACTIVE, and information directly provided by the company collected mainly through their proprietary VE Connect Platform, as long as this information is not labeled as confidential. Management meetings are also arranged when needed. In total, more than 500 data points per company are collected. The final output indicates the degree of involvement of the company assessed based on the degree of information directly provided.

The methodology comprises up to 38 criteria (see Table 4) that emanate from four general frameworks (ISO 26000, the OECD guidelines, the UNGC, and the SDGs) and two specific frameworks (ILO convention, and the UDHR). Each criterion is assessed beyond binary (yes/no) analysis by applying a systematic three-pillar analysis approach: Leadership, Implementation, and Results. The Leadership Pillar consists of 100 points: visibility (20 points), exhaustiveness (60), and ownership (20). The Implementation Pillar is constructed with means (40 points), coverage (30), and scope (30). Finally, the Results Pillar constitutes KPIs trends (30 points), stakeholder feedback (35), and controversy management (35). Each pillar’s maximum score is 100 points and each accounts for 33%. It is noticeable that ESG controversies (divergences between companies’ disclosure and real actions) are systematically integrated into the assessment stage (within the ESG scores) rather than in the verification stage as practised by other metrics (e.g., S&P ESG). Controversies are assessed based on the severity and the frequency of the controversy as well as on the company’s response to the controversy.

Table 4. Moody’s ESG criteria for the ESG dimensions

Environmental	Social	Governance
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⁶ Elaborated with information from VigeoEiris (2021).

Environmental Strategy	Social Dialogue	Anti-Corruption
Accidental Pollution	Employee Participation	Anti-Competition
Green Products	Reorganisation	Lobbying
Biodiversity	Career Management	Board of Directors
Animal Testing	Remuneration	Audit & Internal Controls
Water	Health & Safety	Shareholders
Energy	Working Hours	Executive Remuneration
Atmospheric Emissions	Information to Customers	Product Safety (G)
Waste	Customer Relations	
Local Pollution	Supplier Relations	
Transportation	Social Standards on the Supply Chain,	
Use & Disposal of Products	Social & Economic Development	
Environmental Standards in the Supply Chain	Societal Impacts of Products & Services	
	Philanthropy	
	Fundamental Human Rights	
	Fundamental Labour Rights	
	Non-Discrimination	
	Child & Forced Labour	
	Product Safety (S)	

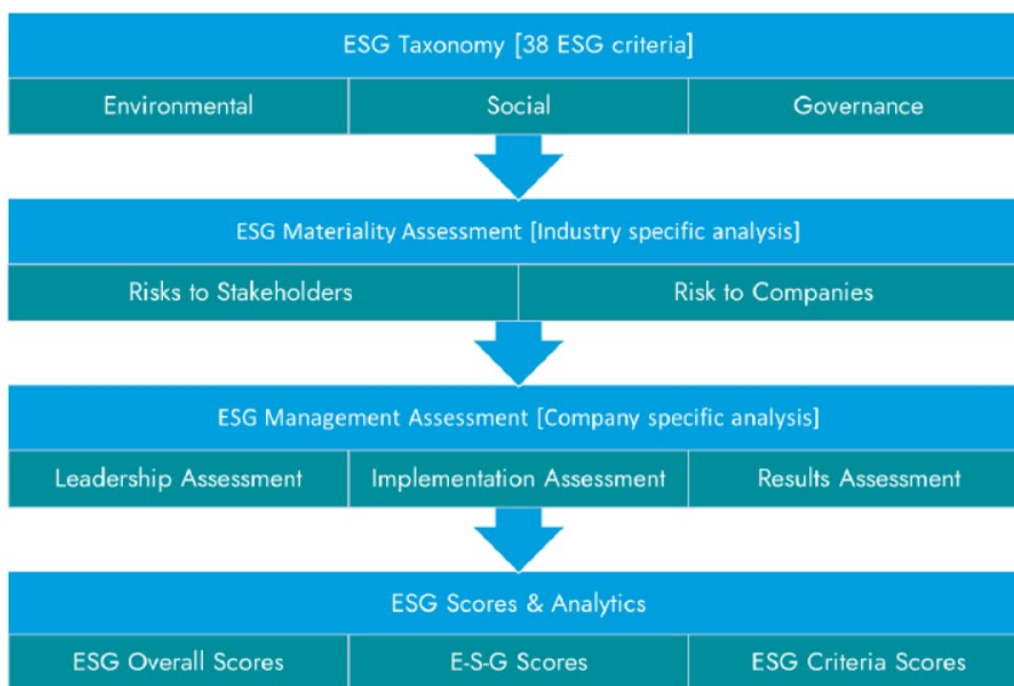
Source: Adapted from VigeoEiris (2021)

Moody's ESG Solutions uses a double industry-specific materiality: risks to the company and risks to its stakeholders. Although the metric is customized to a range of 40 industry-specific models, the 38 criteria are the same for all industries. However, in each of the 40 industry models, they are assigned a different weight from 0 (not relevant to the sector) to 3 (highly material to the sector). On average, each sector has 25 criteria deemed relevant to it. The weights are based on three aspects: importance attributed in international reference texts (frameworks followed) (fundamental, important, or minor), industry-specific risks to the company (high, moderated, or low risk), and risks to its stakeholders (highly, moderately, or marginally exposed). The overall weight of each criterion is determined as a sum of the numerical levels assigned taking into account the three aspects. The metric balances both quantitative and qualitative analysis.

Moody's ESG metric provides a final overall ESG Score on a numeric scale that ranges from 0 to 100 for the company. In addition, the final output of the metric provides 0–100 scores for each of the ESG performance dimensions (Environmental, Social, and Economic) and six different domains (Corporate Governance, Business Behavior, Environment, Human Rights, Human Resources, Community Involvement). The final output also includes a ranking of the company in the sector, region, and overall universe.

Finally, Moody's ESG Scores are used to construct the Euronext Vigeo indices, formerly known as the ASPI (Advanced Sustainable Performance Indices). Furthermore, Moody's ESG Scores are also utilized as the base to power the Ethibel Sustainability Indices (ESI).

Figure 3. Moody's ESG criteria for the ESG dimensions



Source: VigeoEiris (2021)

6.1.2 Bloomberg⁷

Bloomberg ESG Scores cover a universe of more than 12,600 companies, approximately 88% of global equity market capitalization, in more than 100 countries. However, governance-related data is only available for a universe of 5,500 companies (Bloomberg, 2022a). The dataset offers extensive ongoing data coverage and also historical data going back to 2006. Bloomberg ESG Scores can be accessed through their proprietary platform.

Bloomberg ESG Scores are created using voluntary public disclosures collected only from direct (primary) sources such as sustainability reports, annual filings, proxy statements, corporate governance reports, supplemental releases, and company websites. Certain fields are derived by Bloomberg using company-reported underlying data to increase standardization. For example, it is common for Bloomberg to include other information in the database to create intensity measures such as the employee fatality rate, which uses employee fatalities and total employees as inputs into the calculation (Bloomberg, 2020).

To create its ESG Scores, Bloomberg's methodology relies on international ESG frameworks such as the SASB and the GRI, and two specific environmental international frameworks, the TCFD and the CDP. Moreover, for each industry, sectoral and industry association frameworks are followed. For example, for the oil and gas industry, in addition to the international frameworks mentioned, Bloomberg's methodology follows the guidelines of the International Petroleum Industry Environmental Conservation Association, American Petroleum Institute, International Association of Oil and Gas Producers, and American Fuel and Petrochemical Manufacturers. Although Bloomberg adheres to these frameworks, its methodology also clarifies that some KPIs recommended by reporting guidelines have been modified to enhance standardization across regions, jurisdictions, and industries (Bloomberg, 2020). Finally, although Bloomberg delivers data on a company's exposure to each SDG based on segment revenue and operational ESG performance, including SBTi references in its database, both frameworks are not listed within their methodology document (Bloomberg likely updates this in subsequent versions of the methodology document).

The ESG data content is organised into more than 2,000 Field Scores. Based on these fields, Bloomberg applies aggregation techniques to create ESG Sub-Issue Scores, Issue Scores, and Pillar Scores. Table 5 summarizes some of the scores organised at the different levels provided by Bloomberg, however, the specific issues that are scored for each sector and industry can differ. Bloomberg publishes specific industry guides giving details about the specific content of the scores for each sector and industry.

⁷ Elaborated with information from Bloomberg (2020), Bloomberg (2022a), and Bloomberg (2022b).

Table 5. Bloomberg Pillars, Issues scores, and Sub-Issue scores

Environmental	Social	Governance
<p>Air Quality Air Emissions Air Emissions Policies</p> <p>GHG Emissions Management GHG Emissions GHG Emissions Policies GHG Regulation GHG Target</p> <p>Climate Exposure Transition Risk</p> <p>Sustainable Product Green Product</p> <p>Ecological Impact Ecosystem Protection Environmental Fines Environmental Incidents</p> <p>Waste Management Hazardous Waste Generation Hazardous Waste Recycling Waste Generation Waste Recycling</p> <p>Energy Management Energy Consumption Renewable Energy Use</p> <p>Environmental Supply Chain Management Sustainable Sourcing</p> <p>Water Management Wastewater Water Use Water Use Policies</p>	<p>Community Rights & Relations Community & Human Rights Community Relations</p> <p>Occupational Health & Safety Management Fatalities Health & Safety Fines Health & Safety Policies Safety Incidents</p> <p>Ethics & Compliance Business Ethics Competitive Behavior Legal & Regulatory Management</p> <p>Operational Risk Management Operational Incidents Operational Preparedness</p> <p>Labor & Employment Practices Labor Actions Organised Labor Training</p> <p>Product Quality Management Product Quality & Safety</p> <p>Social Supply Chain Management Supplier Social Compliance</p>	<p>Board composition Director Roles Diversity Independence Refreshment</p> <p>Executive compensation Incentive structure Pay Governance Pay for Performance</p> <p>Shareholder rights Shareholder Policies Director Voting</p> <p>(Audit)</p>

Source: Adapted from Bloomberg (2020) and (Bloomberg, 2022a)

Bloomberg Business Intelligence analysts determine the relative importance (weights) of various scores in the aggregation process, from the bottom level (Field Scores) to the upper score level (ESG Score). The dataset includes two types of Field Scores: quantitative and qualitative. For quantitative Field Scores, Bloomberg uses activity metrics (e.g., industry production metrics, sales revenue, or the number of employees) to normalize data where appropriate. Qualitative Field Scores consist of binary “policy” fields, to represent whether the company applies a particular policy. Bloomberg includes a description of activity metrics assigned for a particular industry in each industry guide. Some of these Field Scores are universal, whereas most of them are specific to an industry. In fact, Bloomberg emphasizes that only a few widespread indicators can be applied across companies as a universal standard (Bloomberg, 2020). For example, Fatalities are an example of such “absolute scoring” based on the universal value of human life. However, in most cases, environmental and social (ES) scores are evaluated relative to their industry-specific peer groups. For governance data, Bloomberg uses different criteria for creating comparison groups. Specifically, Governance scores consider certain country-specific policies and practices.

Within the comparison groups, Bloomberg uses parametric techniques. Scores are computed for the current year’s data using parameters that have been estimated from data that corresponds to three years before the

current year. Depending on the type of field and the nature and availability of accompanying data, Bloomberg estimates the parameters using different statistical techniques. The assumed distribution in each case depends on the type of field value. Based on the difference between the real value of the field for a company and the value estimated for their peer group (using data in the three previous years) Bloomberg elaborates an index that ranges from 0 to 10. Higher values (close to 10) mean that the company is doing better than expected as estimated in its peer group. In certain cases, where data is insufficient for estimating parameters reliably, the scores are determined by grouping ranges of outcomes into categories and assigning the same score (between 0 and 10) for all values within a range. When the Field Score is binary, the company gets either a full credit (a score of 10) or zero credit (a score of 0) based on the field value (Yes or No), while taking polarity (positive vs. negative value) into account.

The Sub-Issue Scores are aggregated from Field Scores by a weighted average, depending on the fit/quality attribute values determined by Business Intelligent analysts. These values can be high if the metric is a good measure of desirable attributes in various ESG frameworks, and the data is comparable; medium, if the metric is either a good measure (as above), or the data is comparable, but not both; or low, if the metric is not a good measure and the data is not comparable, or the field is qualitative. Assigned weights are High=9, Medium=4, and Low=1. If a company does not disclose a given field in a given year, that field is ignored, resulting in a redistribution of the weights attached to each field.

Then, Sub-Issue Scores are aggregated into Issue Scores with each issue containing at least one Sub-Issue. To create Issue Scores, it is important to highlight that Bloomberg considers the level of disclosure. Specifically, Bloomberg creates a Disclosure Factor that ranges between 0 and 1, which emphasizes quantitative disclosure. Essentially, the Disclosure Factor is introduced to capture the availability of quantitative Fields for scoring. The Disclosure Factor determines a performance range. Then, Bloomberg scales and shifts the Performance Score into the disclosure-driven range where zero disclosure results in performance Scores being adjusted to a 0–3 range. Perfect disclosure results in performance scores being adjusted to a 0–10 range.

The Pillar Score is a weighted generalized mean (p-mean) of Issue Scores, where the weights are determined by the Issue Priority ranking. Bloomberg has developed a three-part assessment to determine this Issue Priority ranking. Concretely, Bloomberg's methodology is based on the likelihood of the Issue (cost/opportunity) to materialize, the magnitude or potential severity of the financial cost or opportunity, and the timing distinguished between short, medium, or long terms. This value determines the weight assigned to each Issue in the aggregation. Bloomberg includes a description of the assignment of Issue Priorities for each specific industry in the industry guide. Issue Scores containing only binary fields have their weight reduced by 80% to reflect that quantitative fields have better scoring power than binary fields. This Issue Priority ranking manifests a financial materiality approach in creating Bloomberg Pillar scores.

Bloomberg justifies the quality of its assessment by stating that the Issue Priority Ranking reflects the internal discussions and interviews with Bloomberg Intelligence industry analysts, the analysis and news by Bloomberg Intelligence, Bloomberg Law and Government that highlights financial impact related to key environmental and social risks in the industry (e.g., Litigation, Fines, Reputational/Brand Risk, Employee Turnover), Bloomberg proprietary research on industry data related to industry activities and operations and their impact, along with the academic and scientific studies on industry exposure and regulations. However, given that financial materiality assessment is derived from conclusions of Bloomberg analysts after the aforementioned research process, there might be variances when the assessments are made by another rating agency.

Bloomberg provides a final overall ESG score on a numeric scale that ranges from 0 to 10 for the company which allows to rank companies. In addition, the final output of the metric provides 0–10 scores for each of the ESG Pillars and other sub-scores.

Finally, Bloomberg constructs and releases ESG indices in collaboration with different parties such as SASB (Bloomberg SASB ESG Indices), MSCI ESG Research (e.g., Bloomberg MSCI ESG Fixed Income Indices, Bloomberg MSCI Global Corporate, Bloomberg MSCI Euro Corporate), and Goldman Sachs (Bloomberg Goldman Sachs Global Clean Energy Index).

6.1.3 Refinitiv⁸

Refinitiv provides the Refinitiv ESG Scores on over 12,000 public and private companies globally, which covers more than 80% of global market capitalization, although this universe is continuously expanding. Refinitiv ESG Scores have replaced Thomson Reuters’ ESG Scores, which in 2017 replaced ASSET4 after the development of a new ESG framework. This dataset can be used through several Refinitiv products such as Refinitiv Data Platform, Refinitiv Datastream, Eikon, Refinitiv On Demand, Refinitiv Quantitative Analytics and Workspace.

The ESG data started in early 2000, with available historical fiscal periods data from 2002 for approximately 1,000 companies (mainly for the US and European companies). According to Refinitiv, data on products is refreshed every week, including the recalculation of the ESG scores and controversies scores. Regarding the reported ESG data, Refinitiv indicates that it is updated once a year in accordance with companies’ ESG disclosure, although they refresh data more frequently in exceptional cases. Additionally, Refinitiv explains that the scores are marked as “definitive” for all historical years excluding the five most recent.

Refinitiv ESG Scores methodology draws upon international general sustainability frameworks such as the GRI, the SASB, and the SDGs, and the specific environmental framework TCFD. Refinitiv Eikon collects data using their own research analysts (around 150), which includes local language experts from various locations across the globe. They use publicly available information sources such as company websites, annual reports, and CSR reports. Refinitiv Eikon stated that they only use publicly reported company data because “we strive to be the industry standard database that reflects official company disclosure on ESG metrics” (Refinitiv, 2022b: webpage). Therefore, they do not use, create, or collect data that is not disclosed or publicly available.

To create the Refinitiv ESG Scores, for each company, analysts collect and manually process information all over 630 ESG measures. Each data point could be a boolean, related to issues that can be answered as yes or no (0/1), for example, the presence or absence of a policy; or numeric. After collecting the data, each measure undergoes a process of standardization to make it comparable across the whole universe. Specifically, Refinitiv Eikon runs several automatic checks to see inconsistency, missing quantitative data, scaling issues, and so forth. Then, Refinitiv implements independent audits and management reviews (Refinitiv, 2022a). However, there is not much detail on how these checks are executed in Refinitiv’s methodology document.

Refinitiv ESG Scores deliver three types of scores that result from the aggregation of lower level scores: The ESG score, the controversies score, and the ESGC score. First, the ESG score is composed of three-pillars scores (ESG) that are based on 10 category scores distributed as follows (see Table 6): Environmental Pillar (Resource use, Emission, and Innovation), Social Pillar (Workforce, Human Rights, Community and Product Responsibility), and Governance Pillar (Management, Shareholders and CSR Strategy).

Table 6. Refinitiv ESG scores and categories

Overall scores	Environmental	Social	Governance
ESG score	Resource use	Workforce	Management
ESG controversies	Emission	Human Rights	Shareholders
ESGC score	Innovation	Community Product Responsibility	CSR Strategy

Source: Adapted from Refinitiv (2022)

Second, the ESG controversies score measures a company’s exposure to ESG negative events reflected in global media. The ESG controversies score is calculated based on 23 ESG controversy topics. The controversies score also addresses the market cap bias from which large-cap companies suffer, as they attract more media attention than smaller-cap companies (i.e., severity weights are applied to smaller-cap companies). Controversies are benchmarked on the industry group. Companies with no controversies will get a score of 100.

Third, the ESGC score results from the overlay of ESG scores and ESG controversies. When companies are not involved in ESG controversies, the ESGC score corresponds with the ESG score.

Of more than 630 company-level ESG metrics available, Refinitiv uses a subset of 186 metrics to create an ESG assessment for a company and generate ESG scores. The selected metrics are stated to be the most comparable and material per industry. Refinitiv uses the same treatment for boolean and numeric data, concretely, Refinitiv calculates percentile scores (i.e., the number of companies with a worse value plus [the

⁸ Elaborated with information from Refinitiv Eikon (2022a) and Refinitiv Eikon (2022b).

number of companies with the same value/2] divided by the number of companies with a value]. Refinitiv sums up these deriving percentile scores at a data point level, to create the different aggregated firm scores at a company level.

Similar to other rating agencies, Refinitiv uses a comparative group to create its scores. Concretely, to calculate the Environmental and Social category scores, the methodology relies on The Refinitiv Business Classification (TRBC) industry group as the benchmark, as these dimensions are more relevant and material to companies within the same industries. Thus, they clarify that some indicators are industry-specific and thus not relevant for all companies. If an indicator is irrelevant for a particular sector, then it is excluded from the calculation and its value will be deemed not relevant. To calculate the Governance scores categories, Refinitiv uses the country of incorporation as the benchmark, as best governance practices are more consistent within countries.

Thus, for numeric data points with environmental and social impact, weighting is based on the relative proportion that a particular sector contributes to the overall gross number in the full ESG universe. The magnitude weight for a data point is equal to the median value of an industry group, divided by the sum of the medians of all industry groups for the respective data point. For boolean data points, magnitude weights are based on the level of disclosure of each data point in each industry group. These magnitude weights are expressed in deciles (between 0 and 10). If a category has more than one data point, the average decile weight is considered. Themes without data points, because of insufficient disclosure, are not included in the scoring methodology. For Governance, all the data points are equally important to the calculation of magnitude weights in all industry groups. The default category weights are assigned at five points. Then, each one of the 10 category's magnitude weights is divided by the sum of the magnitude weights of the respective industry group to derive the category weights to calculate the overall ESG score. The category weights are normalized to percentages ranging between 0 and 100. ESG pillar scores are the relative sum of the category weights.

Refinitiv offers tables with examples of these weightings known as the "materiality matrix" (Refinitiv, 2022a). According to Refinitiv, using this methodology implies that not reporting "immaterial" data points does not greatly affect a company's score, whereas not reporting on "highly material" data points will negatively affect a company's score.

Refinitiv states that the final goal of its ESG scores is to allow investors to assess ESG-related risks and opportunities, which suggests the use of a financial materiality approach (Refinitiv, 2022b). However, the analyzed methodology (described above) does not consider the risks and/or costs that a specific social or environmental metric could generate for a company. On the contrary, they built the materiality matrix for ES factors based on the relative proportion that a particular sector contributes to the overall gross number of this factor in the full ESG universe. Therefore, their materiality approach is unclear.

This methodology enables Refinitiv to produce a score between 0 and 100, as well as letter grades ranging from D- to A+. Letter D indicates poor relative ESG performance and insufficient degree of transparency in reporting material ESG data and A indicates excellent relative ESG performance and a high degree of transparency in reporting material ESG data.

Although Refinitiv Eikon offers aggregated ESG indices at different levels, the dataset offers full access to raw indicators intending to encourage customization of a company's indicators based on the ultimate goal of the client firm and issues such as materiality, momentum, and time weightage. The possibility of selecting ESG scores allows clients to select the ESG information of interest and make informed investment decisions.

Finally, Refinitiv Eikon also offers ESG indices that are based on its ESG scores which have resulted from collaboration with other organisations. The ESG Indices include Refinitiv Eurozone ESG Select Index, Refinitiv/S-Network ESG best practice indices, Refinitiv Global Resource Protection Select Index, The Thomson Reuters/Future Super Australia Fossil Free Index, and the Refinitiv IX Global ESG High Dividend Low Volatility Equal Weighted Index.

6.1.4 FTSE Russell⁹

FTSE Russell designs and builds sustainable investment data since 2001. It is currently part of the LSEG, similar to Refinitiv. FTSE Russell provides ESG data analytics, ratings, and indexes. In this section, we focus on the FTSE Russell ESG Ratings which includes a universe of 7,200 securities in 47 developed and emerging markets,

⁹ Elaborated with information from FTSE Russel (2021a).

comprising the constituents of the FTSE All-World Index, FTSE All-Share Index, and Russell 1000 Index. The ratings are accessed through the Sustainable investment data platform aimed at investors.

Regarding the source of data, FTSE Russell’s ESG Ratings use publicly disclosed information only to create its ESG rating. That is, they do not send questionnaires or engage companies in the data collection process. However, companies are given access to their web-based research platform and are afforded to review and provide feedback (e.g., additional public information). These data are then tested with a combination of automated checks, senior analyst reviews, and key indicator checks. Data can comprise qualitative indicators, which assess the quality of the management approach, and quantitative indicators, which measure corporate data disclosure.

According to FTSE Russell (2021), their ESG rating relies on the international frameworks of the SDGs. All 17 SDGs are reflected in the 14 ESG Themes. The TCFD recommendations are also incorporated into FTSE Russell’s ESG Ratings as they guide their approach to financial materiality. FTSE Russell also references a long list of sources, which includes relevant international general sustainability frameworks such as the GRI, ISO 26000, the OECD guidelines, the SASB, the UNGC, the UN PRI, and the environmental international framework CDP, and the social international frameworks ILO convention and UN UDHR.

The FTSE Russell ESG Ratings are comprised of an overall rating that breaks down into underlying 3 Pillars (ESG) and 14 Themes that emanate from over 300 individual indicators (See Table 7). The higher-level measures are formed as a weighted average of lower-level measures.

Table 7. FTSE Russell’s Pillars and Themes

Environmental	Social	Governance
Biodiversity	Customer Responsibility	Anti-corruption
Climate Change	Health and Safety	Corporate Governance
Pollution and Resources	Human Rights and Community	Risk Management
Supply Chain	Labor Standards	Tax Transparency
Water Security	Supply Chain	

Source: Adapted from FTSE Russel (2021a).

On average, a company’s ESG rating is built upon 125 indicators. Each Theme contains 10 to 35 indicators. Indicators can be qualitative (assessing the quality of management), quantitative (measuring corporate data), and performance indicators (that use quantitative data to make performance judgments). The FTSE Russell states that points are assigned and are generally 0, 1, or 2 per indicator (or even higher for significant indicators (FTSE Russel, 2021a). However, in the methodological document analyzed, it is very difficult to understand the criteria for value assignment.

Similar to other rating agencies, FTSE Russell considers that some of the indicators are sector-specific, whereas others are region-specific. Specifically, the FTSE Industry Classification Benchmark (ICB) Subsector definitions are used to identify the relevance of a Theme for a company. For companies involved in multiple subsectors, they define a subsector with the highest relevance (e.g., Primary Impact Subsector).

FTSE Russell uses two types of measures to create their ratings: exposures (i.e., Theme exposure and Pillar exposure) and scores (Theme score and Pillar score). Exposure levels range from low (1) to high (3), with 0 indicating that the theme is not relevant. The ESG issues considered to be the most material are attributed the highest weight. Theme scores try to capture the quality of a company’s respective management of the issues and are calculated based on the percentage of total available indicator points that a company has “met” in each theme.

FTSE Russell combines exposure levels and scores defining threshold bands. The threshold bands are higher for companies with a high exposure than the bands for a company with low exposure. Figure 4 illustrates the Theme score and Theme exposure combination. For climate change, FTSE Russell applies special rules. Themes in each Pillar and the overall FTSE ESG Rating are also based on the average exposure level and scores of the themes within them.

FTSE Russell methodology attempts to combine risk exposure and management capability although the specific aggregation rules are not clearly described. FTSE Russell ESG Ratings are exclusively rooted in financial materiality. Their data structure aims to allow investors to understand a company’s exposure to ESG issues, and its respective management.

The output is an overall ESG rating that ranges from 0 to 5 (where 5 is the highest rating). There are also Pillar and Themes scores ranging from 0–5. In addition to these “absolute” scores and ratings, FTSE Russell offers peer relative scores and a relative ESG rating. These are calculated by comparing a company’s score or ESG rating to others within the same FTSE ICB super-sector. The overall FTSE ESG Rating is represented as a percentile where a “1” indicates that a company is in the bottom 1% and “100” indicates a company is in the top 1%.

Figure 4. Weight based on Theme score and Theme exposure

		Theme Exposure		
		Low	Medium	High
Theme Score	0	N/A	0%	0%
	1	0–5%	1–5%	1–10%
	2	6–10%	6–20%	11–30%
	3	11–30%	21–40%	31–50%
	4	31–50%	41–60%	51–70%
	5	51–100%	61–100%	71–100%

} Percentage of Indicator Points scored

Source: FTSE Russell (2021a)

FTSE Russell provides two major series of ESG indices based on their FTSE Russell ESG Ratings: the FTSE4good Index series and the FTSE ESG Index series. It is important to clarify that although the FTSE4Good Index series started in 2001, they were powered by EIRIS ESG until 2013 when FTSE decided to develop its own methodology to power the index.

6.1.5 Sustainalytics’ ESG Risk Rating¹⁰

Sustainalytics’ ESG Risk Rating covers a universe of more than 14,000 publicly listed companies in the major global indices from European, North American, and Asian countries. The ESG Risk Ratings were launched in 2018 but covered companies’ scores since 2010/2011. The ESG Risk Ratings are an updated version of the previous ESG ratings that Sustainalytics offered and imply a methodological shift in the approach followed. While the ESG ratings assess companies based on a broad range of stakeholders’ concerns, the ESG Risk Ratings narrowly focus on the financial concerns that each ESG might imply for each company assessed (Sustainalytics, 2018). The ESG Risk Ratings can be accessed directly from Sustainalytics and also through the Bloomberg platform.

The ESG Risk Ratings are based exclusively on publicly reported data such as structured external data (e.g., CO2 emissions), company reporting, company event records, third-party research (e.g., NGOs), and media. The companies assessed are not actively engaged since they do not provide first-hand information for the ratings. In total, the ratings are based on up to 1300 data points per company that are grouped around 350 indicators (there are some variances by sub-industry) that represent 20 material ESG criteria. The data is assessed by sector research teams following a structured framework that follows the guidelines of the general ESG frameworks GRI, SASB, and PRI. The assessment is conducted annually and is shared with every company in the universe for verification.

The ESG Risk Ratings are underpinned by three main dimensions known as the building blocks: corporate governance, material ESG issues (MEIs), and idiosyncratic ESG issues. Corporate governance covers universal

¹⁰ Elaborated with information from:Sustainalytics (2021)

risks associated with corporate governance structures, practices, and behaviors applicable to all the companies in the universe as they are not industry sensitive. Material ESG issues encompass sub-industry level sustainability-related topics that are addressed through a common set of management initiatives that are relevant to a company level and pose high or severe risks for the company (risk categories 4 and 5). For example, Human Capital is a material ESG issue that encompasses Employee Recruitment, Engagement, Development, Diversity, and Relations. This is the central dimension of the methodology. In total, 138 sub-industries are used for determining ESG materiality. Finally, idiosyncratic issues are company-specific ESG issues that are difficult to foresee or expect for the companies operating in a specific industry (e.g., scandals). The idiosyncratic issues become material ESG when they are categorized as high or severe risks for the specific company (risk categories 4 and 5).

The Sustainalytics ESG Risk Ratings are exclusively rooted in financial materiality. An ESG issue is regarded as being material when it has a potentially significant impact on the economic value of a company, and then, on its financial risk profile from an investor's perspective. Financial materiality is based on a two-dimensional approach: exposure and management. Exposure refers to the degree to which a company is sensitive or vulnerable to ESG potential economic risks. Exposure is assessed in three steps. First, exposure is evaluated at the sub-industry level through the qualitative judgment of sector analysts based on the structured data and incidents data of companies operating in the sub-industry, along with materiality assessments provided by third parties (GRI, SASB, etc.). This process yields a sub-industry exposure score to each material ESG issue that ranges from 0 (no exposure) to 10 (high level of exposure). Moreover, sector analysts determine a set of indicators and their respective weights for each material ESG issue within each sub-industry. Therefore, indicators might be weighted differently for different sub-industries depending on their economic potential risk and the number of indicators available to assess the risk management of the respective issue. The scores and indicators for each material ESG are updated annually. Second, exposure is made company-specific by considering the particular context where an individual company operates (e.g., production or sales side). Specifically, a beta (multiplier) at the individual company level is calculated for each ESG issue. The betas reflect the company-specific deviations from the average sub-industry exposure for all the ESG issues identified as material for that sub-industry. Betas for each ESG issue comprise up to four components: product/production beta (production exposure compared to its peers), financial beta (exposure based on financial strengths of a company compared to its peers), events beta (exposure based on events track records), and geographic beta. Betas can range between 0 (no exposure) and 10 (significantly above the sub-industry average). A qualitative overlay might also be applied by individual analysts in situations when beta is not reflecting recent events (e.g., a merger or acquisition). In the third step, the company exposure score for a particular ESG issue is calculated by the multiplication of the sub-industry exposure score and the company issue beta.

Management, the second materiality dimension, refers to a company's effectiveness in managing its exposure to material ESG issues. Management scores for each ESG issue range between 0 (no evidence of management) and 100 (very strong management). Management is assessed through two sets of indicators: Preparedness Indicators (the company has appropriate institutional structures, policies, and programs to address the ESG issue) and Events Indicators (the company is successful in implementing its management systems). The Events' Indicators reflect the performance of companies (e.g., Actual Emission Reductions) and their Involvement in Controversies (e.g., Environmental Scandals). The aim of incorporating events (outcome-focused) indicators in management is to balance inputs with real-world outcomes that capture the extent of successful integration of a policy or system to reduce ESG-related risks.

Exposure and Management scores are combined to create an Unmanaged Risk score for each ESG issue. The unmanaged risk captures the material ESG issues that have not yet been managed by a company and has two components: the Unmanageable Risk (risks that are not possible to be addressed by a company such as the carbon emissions of airplanes in flight) and the Management Gap (risks that can be managed through appropriate corporate initiatives but are not yet addressed). The Management Gap, therefore, reflects a company's failure to manage its risks. The share of risk that is manageable is calculated at the sub-industry level by assigning a manageable risk factor to each material ESG issue that ranges from 30% (a high level of the ESG risk is unmanageable) to 100% (the ESG issue risk is regarded as fully manageable).

The final ESG Risk Rating Score is created as the aggregation of the Unmanaged Risk scores of individual material ESG issues (difference between a company's exposure and its managed risks). The methodology highlights that the additivity of risk scores is a relevant feature that allows cross-sectorial comparability of the ratings. Finally, a company's ESG Risk Rating consists of a quantitative score (0–100) that serves to group companies into five risk categories: Negligible (0–9.99 — enterprise value has a negligible risk of material financial impacts driven by ESG factors), Low (10–19.99), Medium (20–29.99), High (30–39.99), and Severe (40–100). In 2021, 95% of the companies had a maximum score below 50 (Sustainalytics, 2021). Sustainalytics

ESG risk ratings power three ESG indexes: the JSI, the Global Sustainability Signatories Index (GSSI) 7.5% VC ER, and the STOXX Global ESG Leaders index.

6.1.6 MSCI ESG Research¹¹

MSCI ESG Research offers the MSCI ESG Ratings for a universe of 8,500 companies in the MSCI ACWI Investable Markets Index. MSCI assesses companies dating back to 1999, however, offers only over 13 years of live track history (since 2007). The MSCI ESG ratings can be accessed directly from MSCI and also through the Bloomberg platform.

MSCI ESG Ratings are exclusively based on publicly available information such as company’s financial and sustainability disclosure, specialised government and academic datasets, NGO datasets, and media searches, among others. MSCI ESG research also reaches out to the companies in the universe through a standardized and systematic data review process to verify or collect additional information. However, firm data not available publicly are not considered for a company assessment. Thus, they do not conduct surveys or questionnaires with companies. This fact has created a tendency in companies that receive an alert from a rating agency, to improve their reporting disclosure. Companies are assessed in-depth on an annual basis, albeit MSCI ESG research systematically monitors companies for controversies or negative events. New information is reflected in reports every week with analysts reviewing ESG ratings continuously (MSCI ESG Research, 2022).

MSCI ESG Research bases its methodology on international sustainability frameworks such as GRI, IIRC, SASBS, and SDGs, and on two specific environmental frameworks, CDP and the TCFD.

MSCI ESG Research collects thousands of data points across 35 ESG Key Issues that are structured in 10 Themes within the three ESG Pillars (see Table 8). The Environmental Pillar includes four Themes (Climate change, Natural capital, Pollution and Waste, and Environmental Opportunities), the Social Pillar entails four Themes (Human Capital, Product Liability, Stakeholder Opposition, and Social Opportunities), and finally, the Governance Pillar covers two Themes (Corporate Governance and Corporate Behavior).

Table 8. MSCI Pillar and Themes

Environmental	Social	Governance
Climate Change	Human Capital,	
Natural Capital,	Product Liability,	Corporate Governance
Pollution and Waste	Stakeholder Opposition	Corporate Behavior
Environmental Opportunities	Social Opportunities	

Source: Adapted from MSCI ESG Research (2022a)

The MSCI ESG Ratings rely on financial materiality. MSCI states that the ratings aim to help investors understand ESG-related risks and opportunities and integrate these factors as criteria for their investment portfolios and management process. According to the rating agency, “[a] risk is material to an industry when it is likely that companies in a given industry will incur substantial costs in connection with it, whereas [a]n opportunity is material to an industry when it is likely that companies in a given industry could capitalize on it for profit” (MSCI ESG Research, 2022:3). According to its methodology, financial materiality is industry-specific as companies in the same industry are subject to similar Environmental and Social risks and opportunities. It is also company-specific since exposure varies from company to company. Therefore, MSCI ESG Research only selects the relevant Environmental and Social Key Issues that are material for each industry, from a range of 35 Key ESG Issues, following the Global Industry Classification Standard (GICS) sub-industry classification (see Figure 5 for an example). Governance Key Issues, instead, are not industry or company sensitive and therefore their materiality does not vary.

Once the Key Issues have been selected for a GICS sub-industry, MSCI set the weights that determine the contribution to each Key Issue in each ESG Pillar and the final ESG Rating. Although MSCI ESG Research claims to rely on financial materiality, the weights applied for environmental and social issues consider the impact of the industry, relative to all other industries, whether negative or positive on the natural environment and society. Moreover, the timeline within which the risk or opportunity is expected to materialize for a company in the industry is also considered. For example, if a key issue is categorized as “High-Impact” and “Short-Term”, it

¹¹ Elaborated with information from MSCI ESG Research (2022a) and (2022b) and MSCI (2022).

will have a weight three times higher than a key issue classified as “Low-Impact” and “Long-Term” (MSCI ESG Research, 2022a). The logic behind this materiality approach is that industries with the greatest impact on the natural environment or society will also be subject to the greatest risks and opportunities. MSCI offers detailed information about sub-industry weights in its “ESG Industry Materiality Map.”¹²

Figure 5. Example of material key issues for Coca-Cola



Source: MSCI (2022)

Key Issues assessment is conducted by taking into account risk exposure and risk management, at the company level. First, each company’s exposure to key ESG risks is assessed through the breakdown of its business: operations location, core products or business segments, and other significant features such as outsourced production or reliance on government contracts. Risk exposure is rated on a 0 (no exposure) to a 10 (very high exposure) scale. Second, Risk Management covers the extent to which a company has developed strategies to manage ESG-related risks and has demonstrated a strong track record in managing specific risks (MSCI ESG Research, 2022a). Both dimensions are combined into a single score such that a higher level of exposure demands a higher level of demonstrated management capability to achieve the same overall key issue score. Key Issue scores are also rated on a 0 (very poor) to 10 (very good) scale. The calculation of opportunities assessment is made through a similar process with a few adaptations (MSCI ESG Research, 2022a).

Figure 6. Other MSCI ESG metrics

¹² <https://www.msci.com/our-solutions/esg-investing/esg-ratings/materiality-map>

Climate Change	Natural Capital	Pollution & Waste	Environmental Opportunities	Human Capital	Product Liability	Stakeholder Opposition	Corporate Behavior
Risk Exposure <ul style="list-style-type: none"> • Geographic Exposure to Carbon Regulation (-1,0) • Business Exposure to Carbon-Intensive Operations (-1,0) • Geographic Exposure to Climate Vulnerable Regions (-1,0) • Reliance on Carbon-Intensive Supply Chain (-1, 0) Controversies <ul style="list-style-type: none"> • Climate Change Controversies (-1, 0) Performance <ul style="list-style-type: none"> • Three-year trend of average carbon emissions intensity (-1, 0, 1) • Three-year average carbon emissions intensity (tCO2e / USD million sales) relative to GICS Industry peer median (-1,0,1) 	Risk Exposure <ul style="list-style-type: none"> • Business Exposure to Operations with Land or Ecosystem Disturbance (-1,0) • Geographic Exposure to Fragile Ecosystems (-1,0) • Geographic Exposure to Water Stressed Regions (-1,0) • Business Exposure to Water-Intensive Operations (-1,0) Controversies <ul style="list-style-type: none"> • Environmental Impacts on Communities Controversies (-1, 0) • Operational Impacts on Ecosystems Controversies (-1, 0) • Environmentally Controversial Investments Controversies (-1, 0) • Raw Material Impact Controversies (-1, 0) • Water Stress Controversies (-1, 0) 	Risk Exposure <ul style="list-style-type: none"> • Business Exposure to Operations Producing High Levels of Packaging Waste (-1,0) • Business Exposure to Operations Producing High Levels of Toxic Emissions and Waste (-1,0) Controversies <ul style="list-style-type: none"> • Toxic Emissions & Waste Controversies (-1, 0) 	Practices <ul style="list-style-type: none"> • Alternative Energy Products and Services (1, 0) • Energy Efficiency Products and Services (1, 0) • Green Building Products and Services (1, 0) • Pollution Prevention and Control Products and Services (1, 0) • Sustainable Water Products and Services (1, 0) 	Risk Exposure <ul style="list-style-type: none"> • Business Exposure to Injury-Prone Operations (-1,0) • Geographic Exposure to Poor Workplace Safety Standards (-1,0) • Reliance on Highly-Skilled Workforce (-1, 0) • Business Exposure to Labor-Intensive Operations (-1,0) • Geographic Exposure to Frequent Work Stoppages (-1,0) Controversies <ul style="list-style-type: none"> • Controversial Workplace Accidents Controversies (-1, 0) • Discrimination and Diversity Controversies (-1, 0) • Controversial Working Conditions Controversies (-1, 0) • Collective Bargaining and Union Labor Controversies (-1, 0) • Supply Chain Labor Controversies (-1, 0) 	Risk Exposure <ul style="list-style-type: none"> • Geographic Exposure to Chemical Safety Regulations (-1,0) • Involvement in Business Commonly Reliant on High Concern Chemicals (-1, 0) • Exposure to Business Prone to Data breaches or Handles High Volumes of Customer Data (-1,0) • Geographic Exposure to Privacy Regulations (-1,0) Controversies <ul style="list-style-type: none"> • Chemical Safety Controversies (-1, 0) • Data Security Breaches Controversies (-1, 0) • Customer Fraud Controversies (-1, 0) • Discriminatory Access to Basic Services Controversies (-1, 0) • Marketing Controversies (-1, 0) • Product Safety & Quality Controversies (-1, 0) 	Controversies <ul style="list-style-type: none"> • Social Impacts on Communities Controversies (-1, 0) • Social Impacts of Raw Materials Controversies (-1, 0) • Human Rights Concerns Controversies (-1, 0) • Exposure to Business with Product Safety Risks (-1, 0) 	Risk Exposure <ul style="list-style-type: none"> • Geographic Exposure to Corruption & Instability (-1,0) • Business Exposure to Operations Commonly Associated with Corrupt Practices (-1,0) Performance <ul style="list-style-type: none"> • Tax Gap Greater Than 20% (-1, 0) • Foreign Market Revenue Greater Than 20% (-1, 0) Controversies <ul style="list-style-type: none"> • Anti-Competitive Behavior Controversies (-1, 0) • Bribery and Corruption Controversies (-1, 0) • Business Ethics Controversies (-1, 0) • Taxes and Subsidies Controversies (-1, 0)

Source: MSCI ESG Research (2022b)

As a final output, each company receives a Weighted Average Key Issue Score, a Final Industry Adjusted Score (IAS), and an ESG Letter Rating. The Weighted Average Key Issue Score is calculated based on the underlying Pillar scores and weights and ranges from 0 (very poor) to 10 (very good). The IAS is based on percentiles relative to the company's industry peers. Concretely, the IAS is the weighted average of the Environmental and Social Key Issue Scores and the Governance Pillar Score and is normalized based on score ranges set by benchmark values in the peer set. This final Industry-Adjusted Company Score ranges from 0 (Leader) to 10 (Laggard). Finally, this 0-to-10 scale is divided into seven equal parts, each corresponding to a letter rating that ranges from leader (AAA, AA), average (A, BBB, BB), to laggard (B, CCC) (MSCI ESG Research, 2022a).

In addition to the MSCI ESG Ratings, MSCI ESG research also offers ESG metrics, which include 230 standardized data points, 56 metrics, and 8 themes (i.e., Climate Change, Natural Capital, Pollution and Waste, Environmental Opportunities, Human Capital, Product Liability, Stakeholder Opposition, and Corporate Behavior). For each of these 8 themes, MSCI offers four types of data: Risk Exposure, Controversies, Performance, and Practices. The metrics are coded as Negative, Neutral, or Positive (-1, 0, and 1, respectively). Figure 6 illustrates examples of ESG metrics grouped by ESG topics.

Finally, MSCI is the largest provider of ESG Indices and one of the oldest (since 1990). Currently, MSCI offers over 1,500 equity and fixed income ESG Indices that target institutional investors for index-based investment products, risk and return analysis, compliance with ESG mandates, and defining an investment universe. The first of these indices was the Domini 400 Social Index (renamed as MSCI KLD 400 Social Index), and the last index released is the MSCI Fixed Income ESG Index series, launched in 2020.

6.1.7 S&P Global ESG (RobecoSAM)¹³

S&P Global ESG covers a universe of approximately 8,000 publicly listed companies from Europe, North America, Asia, and Pacific, and South America that represent 90% of global market capitalization. Of these companies, approximately 1,900 actively participate in their assessment, which represents half of the global market capitalization. S&P Global ESG previously known as RobecoSAM provides ESG data since 1999. S&P Global ESG rates the sustainability performance of companies through the use of their self-developed tool the SAM Corporate Sustainability Assessment (CSA) survey, recently renamed as S&P Global ESG Score after the acquisition of the rating agency by S&P in 2019. The S&P Global ESG Scores are provided directly by S&P and also through the Bloomberg platform.

S&P Global ESG Score is mainly calculated through a web-based questionnaire filled actively by the company subjected to assessment. There are also management meetings when required. In addition, S&P Global ESG uses public company disclosures as supplementary information. It is important to notice that companies not actively engaged are only assessed through public company disclosures. Hence, the S&P ESG Score informs if the company is a survey respondent in the final output. Finally, the S&P Global ESG Score is also supported by media and stakeholders' information (e.g., media sources, governments' reports, experts' public analysis) provided by RepRisk. This information is primarily used to determine the controversies. In total, up to 1000 data points per company are collected that are grouped in different data layers/levels. All the data are integrated through the S&P Global market intelligence platform equipped with automated checks utilizing machine learning and natural language processing and the S&P Global Xpressfeed that offer data metrics, modeling, and calculations. The verification process is independent of the scoring processes and conducted by an independent third party.

Companies submit data and supporting evidence via the software platform equipped with automated checks, utilizing ML (machine learning) & NLP (natural language processing) techniques. Additional verification and QC checks are performed by expert industry analysts and topic specialists. This quality control process undergoes an independent annual edit to ensure the accuracy and consistency of analyst verification. Data verification and scoring processes of the CSA are wholly separated. External verification is conducted through an independent third-party, which verifies data or of processes.

Different international frameworks are the basis of the criteria used by the S&P Global ESG methodology. Within the general ESG frameworks, the GRI, OECD guidelines, UNGC, UN PRI, SASB, SFDR, and WEF are followed. However, within the specific international frameworks, the environmental frameworks related only to climate change, such as CDP, GHG Protocol, SBTi, and TCFD, are used. According to the company, their ESG scoring methodology aligns 83% to the mentioned frameworks, being the rest of the divergence associated with new hot sustainability topics that emerge before they are included in the updated versions of these frameworks. The S&P ESG methodology comprises 130 questions, of which approximately 30 are specific to each industry. This means that the criteria assessment varies between companies from different industries. Following the GICS, 61 industry-specific assessment approaches with tailored questions are developed (Figure 7). In addition, each year new questions are added to account for new relevant sustainability topics material to each industry and universally. Therefore, the criteria vary with industry and year of evaluation. The scoring method seeks to account for the actions implemented (results) rather than using a binary system of when companies mention following a standard or policy.

Figure 7. Example of criteria per industry

¹³ Elaborated with information from S&P global (2021).

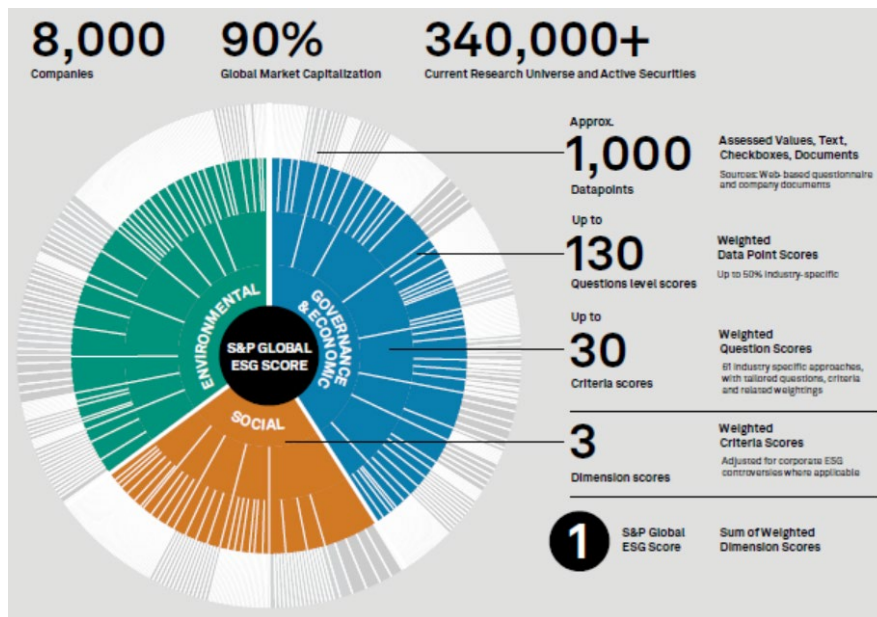
Dimension Detail		Auto	Banks	Pharma	Airlines	Software	Insurance	Food Products	Biotechnology	Steel	Real Estate	Gas Utilities
Governance & Economic Dimension	Risk & Crisis Management											
	Supply Chain Management											
	Tax Strategy											
	Business Ethics											
	Corporate Governance											
	Customer Relationship Management											
	Cyber Security											
	Product Governance & Excellence											
Social Dimension	Human Capital Management											
	Human Rights											
	Labor Relations											
	Occupational Health & Safety											
	Responsible Marketing & Labeling											
	Community Impact & Relations											
	Access & Affordability											
	Operational Eco-Efficiency & Management											
Environmental Dimension	Food Loss & Waste											
	Climate Strategy											
	Transition Risk Management											
	Biodiversity, Ecosystems & Land Use											
	Waste Management											
	Water Use & Management											
	Resource Use & Management											

Source: S&P Global (2021)

The questions are then grouped into 15–30 criteria that are weighted according to its specific-industry double materiality: financially material factors—that pose a risk for the company, and environmental/society material factors—that create risks for all types of stakeholders including the natural environment and the society as a whole. The material factors are derived from statistical correlations between key sustainability issues and financial performance indicators (e.g., ROA, ROE) along with the expertise of their financial market experts. When applying the double materiality, the expected magnitude (degree of impact) and the likelihood of impact are taken into account. Furthermore, the scoring algorithm rewards more points to companies with more quality and completeness of public disclosures along with consideration of independent third-party verification of the disclosed metrics.

The S&P ESG metric provides a final overall ESG score on a numeric scale that ranges from 0 to 100 for the company (see Figure 8). This final score is the sum of the weighted scores of each of the three ESG dimensions (ESG). The ESG dimensions scores are also weighted by the calculation of the controversies, for example, incidents related to Human Rights Abuses, Corruption, Fraud, or Environmental Violations that could damage companies’ reputation and finance. The ESG scores are updated monthly, and the overall ESG score accounts for material controversies that are checked daily. The S&P ESG scores power the Dow Jones Sustainability Indices (DJSI) delivered since 1999.

Figure 8. Overall ESG methodology



Source: S&P Global (2021)

6.1.8 ISS ESG ¹⁴

ISS ESG is a business unit within ISS that is independent from ISS Corporate Solutions INC to mitigate potential conflicts of interest. The ISS ESG provides the ISS ESG Corporate Rating that currently covers a universe of over 9,700 companies mostly from North America, Europe, and South Africa, and also from Asia and Pacific, and South America. Approximately 70% are publicly listed companies from the most relevant global and national indices. The ISS ESG Corporate Rating is available from 2019 onwards, although the raw metrics (approximately 130) linked to the ISS ESG Corporate Rating are available back from 2014. The ISS ESG Corporate Rating methodology, originally developed by Oekom Research, has been updated during the last 25 years. The ISS ESG Corporate Rating can be accessed from a recently created online portal, the ISS ESG Gateway, and the FACTSET and Bloomberg platforms.

The ISS ESG Corporate Rating is primarily constructed with publicly available information and data such as company reporting and disclosure (e.g., annual and sustainability reports, company policies) and ESG impact data (e.g., emissions intensity and resources efficiency), third-party disclosure from recognized international or local non-governmental organisations (e.g., CDP database), governmental and international institutions, and media outlets. The companies assessed are not actively engaged and do not provide first-hand information for the ratings. However, they are invited annually to provide feedback during the verification stage to provide additional information and contrast the reports generated by the analysts. In total, the ISS ESG Corporate Rating is rooted in up to 800 data points per company rated and assessed by sector research teams of analysts following a structured assessment as per the guidelines of the general ESG frameworks GRI, OECD guidelines for Multinational Enterprises, SASB, SDGs, UN GC, and the UN PRI; the environmental international frameworks CDP, SBTi, and TCFD; and the social framework ILO. In addition, the EU SFDR is stated to be followed. The internal Methodology Review Board (MRB), consisting of methodology and research leaders, monitors the process and regularly reviews the rating structures and indicators.

The ISS ESG Corporate Rating is constructed annually based on up to 100 different ESG criteria that represent around 30 ESG topics. While 30 indicators are universal (cross-industry) for all the companies, most indicators are industry-focused and hand-picked from a pool of over 800 indicators available in the ISS ESG database by industry specialists to ensure that the most material ESG issues are considered in order to determine the overall rating. Examples of cross-industry indicators include Energy Management, Climate Change Strategy, Water Risk and Impact, Products' Environmental Impact, Health and Safety, Equal Opportunities, Human Rights, Board Independence, Shareholder Democracy, Business Ethics, and Payments to Governments. Most of them are

¹⁴ Elaborated with information from <https://www.issgovernance.com/esg/ratings/corporate-rating/> and ISS ESG (2021).

defined under the EU SFDR. Industry-specific indicators, for example, in the oil, gas, and consumable fuels industry, include access to Sustainable Energy, Environmentally Safe Operations of facilities, Reduction of Gas Flaring, Pipeline Integrity, Safety Management, and Alternative Fuels. These indicators are annually reviewed to cover the latest technological and scientific advances, regulatory changes, and social debate.

Each of these ESG indicators is individually rated with a twelve-point scale from 1 to 4 and a corresponding grading system ranging from A+(excellent performance) to D-(Poor performance), as illustrated in Figure 9. The assessment considers the sustainability impact of operations according to risk exposure and management approaches along the entire value chain to avoid harm, and the sustainability impact of product portfolios to find opportunities. Furthermore, the analysts provide a qualitative summary and analysis around three dimensions: sustainability opportunities, sustainability risks, and governance.

Figure 9. The ISS ESG Corporate Reporting scores scale

D-	D	D+	C-	C	C+	B-	B	B+	A-	A	A+
1.00 - <1.25	1.25 - <1.50	1.50 - <1.75	1.75 - <2.00	2.00 - <2.25	2.25 - <2.50	2.50 - <2.75	2.75 - <3.00	3.00 - <3.25	3.25 - <3.50	3.50 - <3.75	3.75 - 4.00

Source: ISS ESG (2021)

The ISS ESG Corporate Rating methodology is based on specific-industry double materiality: ESG risks for the company, and the ESG impact of the operations and products of the company on society and the natural environment. First, different weights are assigned to the ESG topic levels, and second, the ESG dimensions are also weighted based on the ESG risks and impact of particular industries according to the ISS ESG’s industry classification system (60 different industries) and previously defined performance expectations. The extent of industry-specific ESG risks and impacts defines the respective performance thresholds and weights distribution between the rating dimensions per industry. For each industry, analysts identify five key ESG issues (representing more than 50% of the industry ESG materiality) used for comparing companies with their peers on how well they manage those key issues.

The ISS ESG Corporate Rating provides a final overall ESG score that is both qualitative and quantitative: A+/4.00 (excellent performance) to D-/1.00 (poor performance) (see Figure 10). This final score results from the aggregation of individual scores and weightings at the ESG indicator level, and then, aggregated at the ESG topic level. The ISS ESG Corporate Rating also uses a staged process in which scheduled annual updates are conducted to account for material incidents such as significant controversies, accidents, and corporate actions (e.g., mergers and acquisitions). Each controversy is assessed based on three levels of severity values: Moderate, Severe, and Very Severe. The methodology follows a Norm-Based assessment of corporate compliance with recognized international guidelines as a stress test of ESG performance using more than 4,500 selected media sources and 150 stakeholder sources.

In addition to the overall rating score, an ESG Performance Score offers a decile rank that indicates a company’s performance concerning industry peers. A decile rank of 1 indicates High Relative Performance, whereas a 10 indicates a Lower Relative Performance. The ESG Performance Score also allows for cross-industry comparisons using a standardized best-in-class threshold, measuring company performance with a scale ranging from 0 to 100, with 50 representing the prime threshold applicable for the industry. Industry leaders who meet the industry-specific prime threshold are granted the external recognition of having a “Prime Status” which means the company is well-positioned to manage material ESG risks and capitalize on the opportunities offered by ESG management. Companies operating in high-risk and impact sectors have to perform better than those from low-risks sectors to obtain the ISS ESG Prime Status. The ISS ESG Performance Score is used to power the ESG EVA leaders index series that integrate sustainability and financial materiality.

Finally, ISS ESG offers other ESG ratings-related products such as the SDG Impact Rating which provides an aggregated measurement of a company’s positive (+10) or negative impact (-10) on the 17 SDGs across 100 data factors, and the Governance QualityScore that rates companies from 1 (low risk) to 10 (high risk) according to four corporate governance areas: Board Structure, Compensation, Shareholder Rights, and Audit & Risk Oversight. The Governance QualityScore is also used to power the Governance QualityScore index series.

6.2 Main ESG indices

Given the increasing interest of investors in ESG investment returns, there has also been a proliferation of ESG indices that include publicly listed companies in major global market capitalization indices that stand out in terms of their sustainability practices. Specifically, an ESG index is a benchmark of the ESG performance of companies that only includes best-in-class companies from selected financial indices (e.g., S&P 500). Hence, ESG indices' main characteristic is to incorporate ESG criteria into the universe selected. There are general ESG indices that rank companies based on their global ESG performance but also specific ESG indices that focus only on particular ESG aspects (e.g., clean energy, Fossil Fuels). In the following paragraphs, we provide examples of relevant ESG indices developed by the major ESG rating agencies, which are summarized in Table 9.

Moody's ESG Scores, formerly Vigeo EIRIS, are used to construct the eight Euronext Vigeo indices composed of companies with the top ESG assessment globally and in specific regions or countries (Euronext Vigeo World 120, Euronext Vigeo Europe 120, Euronext Vigeo Eurozone 120, Euronext Vigeo US 50, Euronext Vigeo Benelux 20, Euronext Vigeo France 20, Euronext Vigeo the United Kingdom 20 and Euronext Vigeo Emergents 100 (for emerging markets))¹⁵. These equity indices, formerly known as the ASPI (Advanced Sustainable Performance Indices), were launched in 2001 by Vigeo. Furthermore, Moody's ESG scores are also utilized as the base to power the Ethibel Sustainability Index (ESI), developed in 2002 by Ethibel SRI Consultancy¹⁶. In addition, EIRIS scores were used since 2001 to power the FTSE4good Index until 2013 when the FTSE Group decided to end the agreement with EIRIS and develop a new generation of indices.

Bloomberg also offers a series of fixed income and equity indices with a focus on ESG developed jointly with other ESG rating agencies. For example, Bloomberg partners with MSCI ESG research to combine MSCI ESG ratings and Bloomberg Fixed Income Indices that have resulted in the creation of four indices: Bloomberg MSCI Socially Responsible Index, Bloomberg MSCI Sustainability Index, Bloomberg MSCI ESG-Weighted Indices, and Bloomberg MSCI Green Bond Indices. Moreover, Bloomberg collaborates with SASB, combining the Bloomberg Fixed Income and Equity indices, respectively with the R-Factor, an ESG score developed by the SSGA, to create the Bloomberg SASB ESG Corporate Indices. Such indices focus on ESG factors that are more likely to materially impact the financial performance of companies in a given industry. Moreover, Bloomberg has recently launched the Bloomberg Goldman Sachs Global Clean Energy Index (2021), in collaboration with Goldman Sachs Asset Management to track the performance of 175 global equities with significant business exposure to the clean energy sector. Another co-developed index is the Bloomberg Rockefeller US All Cap Multi-Factor ESG Improvers Index (Bloomberg, 2021).

Table 9. Examples of ESG indices by main ESG rating agencies

ESG Rating agency	Parent Company	ESG index	year
Moody's ESG Sol. (Vigeo EIRIS)	Moody's	ESG Euronext-Vigeo (formerly ASPI indices)	2001
		Ethibel Sustainability Index	2002
Bloomberg	Bloomberg	Bloomberg MSCI Socially Responsible Indices	2014
		Bloomberg MSCI Sustainability Indices	2014
		Bloomberg MSCI ESG-Weighted Indices	2014
		Bloomberg MSCI Green Bond Indices	2014
		Bloomberg SASB ESG Corporate Indices	2019
		Bloomberg SASB ESG Equity Indices	2019
		Bloomberg Goldman Sachs Global Clean Energy Index	2021
		Bloomberg Rockefeller US All Cap Multi-Factor ESG Improvers Index	2021
Refinitiv Eikon	LSEG	Refinitiv Eurozone ESG Select Index	2005
		Refinitiv/S-Network ESG Best Practice Indices	2017
		Refinitiv IX Global ESG High Dividend Low Volatility Equal Weighted Index	2004

¹⁵ <https://live.euronext.com/en>

¹⁶ <https://www.forumethibel.org/en/investing-in-sustainability/our-sustainable-universe>

		Refinitiv Global Resource Protection Select Index	2007
		The Thomson Reuters/Future Super Australia Fossil Free Index	2010
FTSE Russell	LSEG	FTSE4good index series	2001
		FTSE ESG index series	2015
Sustainalytics	Morningstar Group	Jantzi Social Index (JSI)	2000
		Global Sustainability Signatories Index (GSS)	2011
		STOXX Global ESG Leaders Indices	2018
MSCI	Morgan Stanley	MSCI KLD 400 social Index (formerly KLD Domini 400 Social Index)	1999
		MSCI Fixed Income ESG index	2020
Calvert	Morgan Stanley	The Calvert US Large-Cap Core Responsible Index (formerly the Calvert Social Index)	2000
		Calvert International Responsible Index (formerly Calvert Developed Markets Ex-U.S. Responsible Index)	2015
S&P Global ESG (RobecoSAM)	S&P	Dow Jones Sustainability Indices (DJSJI)	1999
ISS ESG	Deutsche Börse	ISS ESG EVA Leaders Index series	2017
		ISS Governance QualityScore Index series	2021

Source: Elaborated by the authors

Refinitiv Eikon also collaborates with other organisations to develop ESG-related indices based on their own ESG ratings to help investors assess the risk of companies against ESG factors. Refinitiv Eikon develops general ESG indices such as the Refinitiv Eurozone ESG Select Index (2005) which includes the stock performance of European companies in selected countries, the Refinitiv/S-Network ESG Best Practices Indices that benchmark companies with superior ESG ratings (2017), and the Refinitiv IX Global ESG High Dividend Low Volatility Equal Weighted Index (2004) constructed with the ESG scores of companies from developed countries with regards to their peers in a given sector and region. Refinitiv Eikon also develops specific ESG-related indices such as the Refinitiv Global Resource Protection Select Index (2007) which tracks the performance of stocks that reduce materials, energy, or water, and the Thomson Reuters/Future Super Australia Fossil Free Index (2010)¹⁷.

FTSE Russell provides two major series of ESG indices: the FTSE4good Index series and the FTSE ESG Index series. The FTSE4Good Index series, launched in 2001, was powered by EIRIS ESG scores until 2013 when FTSE decided to stop the collaboration with EIRIS, and instead, develop its own metric to power the index. The first FTSE4Good index was focused on identifying companies that met globally recognized sustainability standards. Since then, FTSE has extended the index series with the FTSE4Good US Select Index (2004), the FTSE4Good Bursa Malaysia Index Series (2014), FTSE4Good TIP Taiwan ESG Index (2018), FTSE4Good BIVA Index, FTSE4Good North America Index, and FTSE4Good Developed Asia Pacific Index (2019), and FTSE4Good Indonesia Index (2020) (FTSE Russell, 2021b). The FTSE EG index series, launched in 2015 after the creation of FTSE Russell, uses FTSE Russell's ESG rating methodology and maintains industry neutrality. Currently, the FTSE ESG index series consists of four indices: FTSE Developed ESG Index, FTSE Emerging ESG Index, FTSE All-Share[®] ESG Index, and Russell 1000[®] ESG Index. Furthermore, FTSE Russell also offers specific ESG indices focused on particular sustainability topics, such as the FTSE Environmental Markets Index Series (2008), the FTSE ex Fossil Fuels Index Series (2014), the FTSE Women on Boards Leadership Index Series (2018), the FTSE Smart Sustainability Index Series (2020), or the FTSE Climate Risk-Adjusted Government Bond Indexes (2021)¹⁸.

Sustainalytics powers three ESG indexes: JSI and the GSSI 7.5% VC ER, which are managed in-house, and the STOXX Global ESG Leaders index. The JSI was launched in 2000 in collaboration with Dow Jones Indexes. It is a market capitalization-weighted stock index modeled on the S&P/TSX 60 comprising 50 Canadian companies that meets a set of ESG criteria historically (performance in aboriginal relations, community involvement, the environment, human rights, etc.). The GSSI, launched in 2018, consists of the top 100 global compact signatories with the highest ESG rating in their respective industries and regions according to the Sustainalytics ESG Risk ratings. Finally, the STOXX Global ESG Leaders Indices, launched in 2011 by Qntigo (part of the Deutsche Börse Group), consist of leading global companies on CS based on the ESG indicators provided by Sustainalytics: the

¹⁷ <https://www.refinitiv.com/en/financial-data/indices/esg-index>

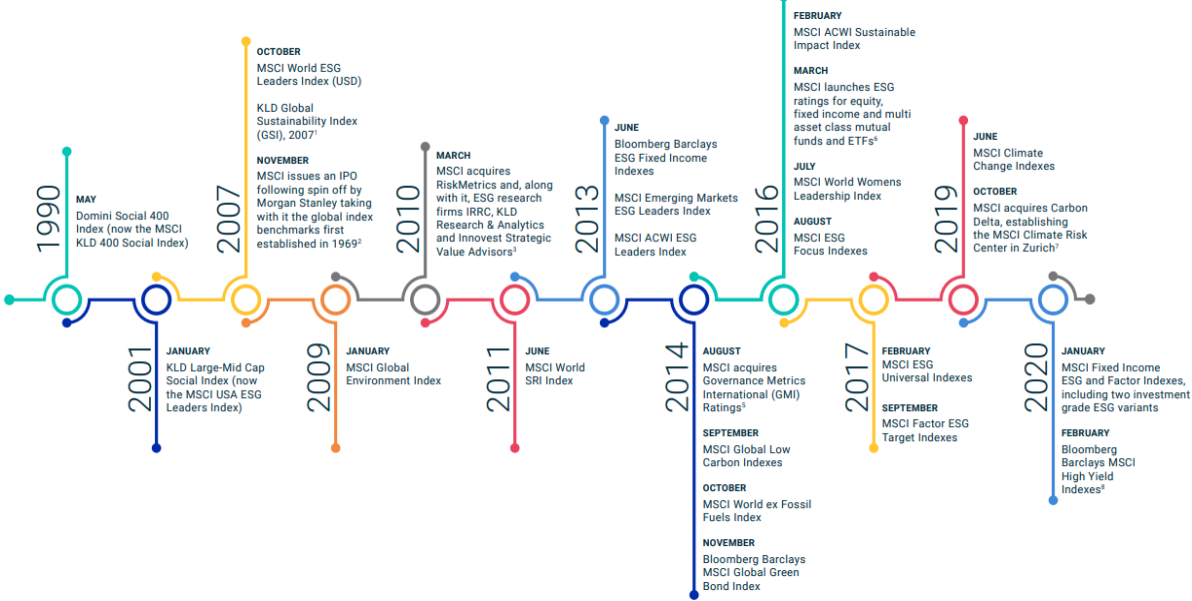
¹⁸ <https://www.ftserussell.com/index>

STOXX Global Environmental Leaders index (environmental sustainability), the STOXX Global ESG Social Leaders index (social sustainability), and the STOXX Global ESG Governance Leaders index (Governance). These three indices are aggregated to provide a single index. The eligible index constituents are selected from the STOXX Global 1800 Index¹⁹.

MSCI is the world’s largest provider of ESG Indices. MSCI indices can be tracked back to 1990 when the Domini 400 Social Index was first launched (currently named the MSCI KLD 400 Social Index). Nowadays, MSCI offers over 1,500 equity and fixed income ESG indexes targeting institutional investors so they can benchmark ESG investment performance. The last MSCI ESG index developed was the MSCI Fixed Income ESG index in 2020 (see Figure 10). The MSCI ESG indices are grouped into three different categories: integration, values, and screen and impact²⁰.

In addition, MSCI, through the Calvert Research and Management business unit, delivers two additional ESG indices: The Calvert US Large-Cap Core Responsible Index (CALCOR), and the Calvert International Responsible Index (CALDMI). The Calvert US CALCOR received this name in June 2015 after the introduction of a methodology change. Originally developed in 2000, it was previously known as the Calvert Social Index aimed to benchmark the largest-capitalization 1,000 US companies according to social criteria for responsible investment (Calvert, 2022). The Calvert International Responsible Index, created in 2015, focuses on a universe of 1,000 large publicly traded companies in developed markets, excluding the US. Generally, the index uses the 500 largest companies located in Europe and the 500 largest companies located in other developed countries. Before June 2017, the Index was called the Calvert Developed Markets Ex-U.S. Responsible Index (Calvert, 2021).

Figure 10. The Evolution of the MSCI ESG Indices



Source: <https://www.msci.com/our-solutions/indexes/esg-indexes>

S&P publishes the DJSI since 1999. The DJSI covers an invited universe that includes the largest company by float-adjusted market capitalization within the S&P Global BMI (Broad Market Index). The DJSI are launched by sub-families (world, regions, and countries), for example, DJSI World (2,500 largest companies) and DJSI Europe (600 largest developed companies). Within each assessed universe, companies with an S&P Global ESG score less than 45% of the highest scoring company are disqualified. The companies listed in the DJSI receive the external distinctive DJSJ logo. In addition, companies are classified as Gold class (a minimum total score of 60 with a score falling within 1% of the top-performing company’s score in their industry), Silver class (a total score of at least 57 with a score falling within a range of 1% to 5% of the industry’s top-performing company’s

¹⁹ <https://www.sustainalytics.com/investor-solutions/index-research-services/esg-index>

²⁰ <https://www.msci.com/our-solutions/indexes/esg-indexes>

score), Bronze class (at least 54 with score falling within a range of 5% to 10% of the industry's top-performing company's score). The remaining companies that have not received a medal distinction are still listed as Sustainability Yearbook Members if they are within the top 15% of their industry (S&P Global, 2022).

The ISS ESG business units began developing the ESG EVA Leaders Index series to integrate CS and profitability in 2017. The index includes sector-leading companies with superior economic profit (Economic Value Added – EVA- margin) and medium to high ESG performance that adhered to ESG international frameworks and the controversial weapons framework. The ISS ESG EVA Leaders Index covers 21,000 public companies across developed markets, especially Europe and North America. In addition, since 2021, the ISS ESG develops an index that focused specifically on governance based on the ISS Governance QualityScore²¹.

²¹ <https://insights.issgovernance.com/posts/iss-esg-eva-leaders-integrating-sustainability-and-profitability/>

7 ESG ratings and metrics comparison

This section compares and contrasts the ESG ratings and metrics described in the previous section. Table 10 lists the ESG ratings/metrics that were analyzed and some identifying information such as the location, parent company, and rating agency. Considering the location, all ESG ratings are provided by European and North American rating agencies and belong to large financial credit agencies (parent companies) owing to extensive mergers and acquisitions in the ESG market in the last decade.

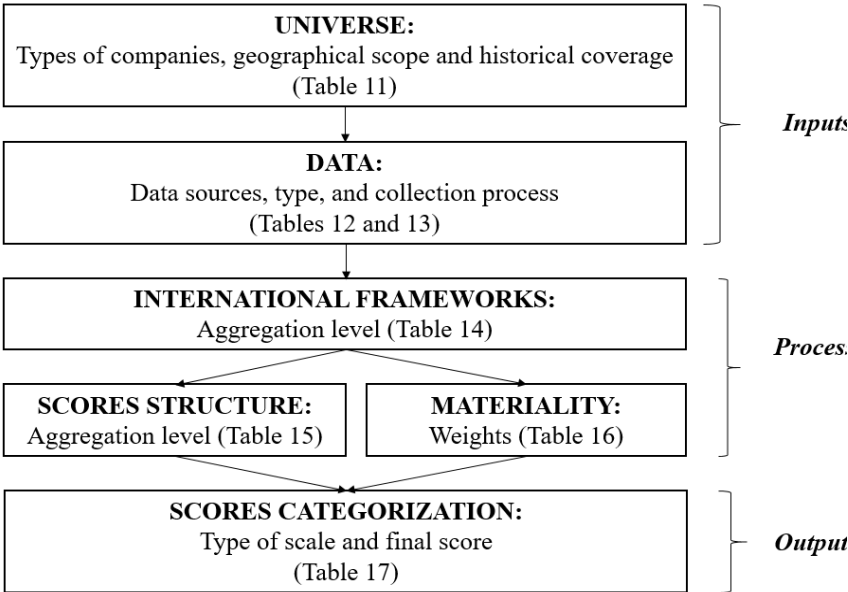
Table 10. Description of the ESG ratings

ESG rating/metric name	ESG Rating agencies	Location	Parent company
Moody's ESG Scores (Formerly, Vigeo EIRIS ESG score)	Moody's ESG Solutions	Vigeo (France) EIRIS (UK)	Moody's
Bloomberg ESG Scores	Bloomberg	New York (US)	Bloomberg, L.P
Refinitiv ESG Scores	Refinitiv Eikon	New York (US) London (UK)	LSEG
FTSE Russell ESG Ratings	FTSE Russell	London (UK)	LSEG
Sustainalytics ESG Risk Ratings (Formerly, ESG Ratings)	Sustainalytics	Amsterdam (The Netherlands)	Morningstar Group
MSCI ESG Ratings	MSCI ESG Research	New York (US)	MSCI, Inc
S&P Global ESG Score (Formerly, SAM CSA)	S&P Global ESG	Zurich (Switzerland)	S&P Global
ISS ESG Corporate Rating	ISS ESG	Munich (Germany) Maryland (US)	Deutsche Börse

Source: Created by the authors

The comparison of ESG ratings and metrics was structured according to the following criteria: (1) universe, historical, and field coverage; (2) data sources; (3) type of data and treatment; (4) international frameworks followed; (5) data structure and aggregation levels; (6) materiality and priority weighting approach, and (7) score categorization and scale. Figure 11 illustrates the rating process followed by the rating agencies to develop their ESG scores and helps identify the key criteria for comparing different ESG ratings. We followed this scheme to compare different ESG ratings in the following sections.

Figure 11. Rating process and key criteria



Source: Elaborated by the authors

7.1 Universe, geographical scope, and historical coverage

In line with the increasing interest in ESG investment, the main rating agencies have continuously increased the universe and ESG field coverage of their ESG ratings and metrics as well as the possibility of obtaining historical data to make their ratings more extensive. Table 11 summarizes the universal, historical, and field data coverages offered by each ESG rating/metric.

The largest universe is offered by Sustainalytics ESG Risks Rating, Bloomberg ESG Scores, and Refinitiv ESG Scores with over 10,000 firms covered. However, these universes are rarely covered for all data. For example, regarding the governance score, Bloomberg ESG Scores offer data only of 5,500 companies (Bloomberg, 2022). Regardless of the specific number of companies that changes frequently, most data providers claim to cover approximately 70 to 90% of global market capitalization. Although this coverage seems extensive, a common characteristic is that the data are limited to listed companies, especially publicly listed companies, based on the most relevant global indices. Therefore, there is a clear ESG data gap concerning unlisted or private companies, especially small and medium companies. One exception is Moody's ESG Solutions, which also includes the evaluation of companies that voluntarily request it. Regarding the geographical scope of this universe, all analyzed ESG data offer information on a global set of companies. Although it is global in coverage, it is biased toward North American and European companies. Other geographic areas are less represented, and there are certainly many regions with almost no representation.

Table 11. Universal scope, geographical scope, and historical coverage

ESG ratings and metrics	Universe			Historical coverage	Fields (data points)
	Number	Type of companies	Geographical scope		
Moody's ESG Scores	≈5000	Listed	Europe, North America, Asia Pacific, and Emerging markets	2003	+500
	5000	Voluntarily companies (evaluation upon request)			
Bloomberg ESG Scores	12,600	Listed	Global (+100 countries)	2006	+2000
Refinitiv ESG Scores	≈12,000	Public and private	Global	2002	630
FTSE Russell ESG Ratings	7,200	Listed	47 Developed and Emerging markets	2001	+300
Sustainalytics ESG Risk Ratings	+14,000	Listed	Europe, North America, Asia	2010	1300
MSCI ESG Ratings	8,500	Listed (MSCI ACWI IMI)	Europe, North America, Asia, Pacific, Middle East, Near East, Africa	2007	+1000
S&P Global ESG Score	≈8,000	Listed	Europe, North America, Asia and Pacific, and South America	1999	+1000
ISS ESG Corporate Rating	≈9,700	Listed	Europe, North America, South Africa, Asia and Pacific, and South America	2019 (2014 only row data)	≈800

Source: Elaborated by the authors

Regarding historical data coverage, we can state that a longer historical coverage is of particular interest to researchers, as it allows for more robust studies and uncovering of causal relationships. For investors, it provides a larger sample to track records and make more accurate predictions about returns. Although some rating agencies started their ESG research activity years ago, Table 11 illustrates the year in which the databases indicate that historical data are available. Even if the databases claim long historical information, the truth is that data are not usually available for an extensive universe for any field prior 2012 and more intensively until 2016. For example, although Refinitiv Eikon ESG Scores started in 2002, ESG scores have only been available for approximately 1,000 companies (mainly in the US and Europe) since that year. The ISS ESG Corporate Rating offers historical data for the raw metrics starting in 2014, but only from 2019 for its aggregated ESG rating.

Finally, the number of different data points used to assess ESG varies among the ESG rating/metrics. Bloomberg ESG Scores include the most extensive coverage with 2,293 proprietary fields (more than 3,100, including

partners' data). The amount of data is constantly evolving with a tendency to provide an increasing number of data points. Although this trend could be seen as a positive evolution, it might prove confusing and complex for companies, which can hardly provide quality information for more than 3,000 different indicators.

7.2 Data sources

Rating agencies differ in the origin of the data used to create their ESG ratings and metrics. The main difference is whether the rating agency considers only public information (available to all stakeholders) or whether it involves the company itself in the information gathering to create the ratings/metrics. These differences are listed in Table 12.

Regarding publicly available sources, the most relevant source is company self-reported data, which include sustainability reports, annual filings, proxy statements, corporate governance reports, supplemental releases, and company websites. Other publicly available data sources include NGOs, media, specialised government and academic datasets, scientific literature, and national, international, and industry databases, among others. For example, the S&P Global ESG Score uses media and stakeholders' information provided through RepRisk. RepRisk is a private data provider that applies a combination of AI and machine learning with human intelligence to big data from print media, online media, and social media, including Twitter and blogs, government bodies, regulators, think tanks, newsletters, and other online sources.

Most data providers rely almost exclusively on publicly available information from all stakeholders. Bloomberg, Sustainalytics, MSCI ESG Research, FTSE Russell, and ISS ESG use both companies' disclosure and other third-party public information. However, Refinitiv Eikon, as S&P Global ESG, also uses media analysis to identify and create a controversy score. For example, Refinitiv Eikon literally stated that they only use publicly reported company data because "we strive to be the industry standard database that reflects official company disclosure on environmental, social, and governance (ESG) metrics" (Refinitiv, 2022b: webpage).

In some cases, rating agencies contact companies as a form of confirmation of their information but do not use data that is unavailable to the public. For example, MSCI ESG Research indicates that it only uses publicly available data; however, it also proactively reaches out to companies as part of a standardized and systematic data review process. Similarly, Sustainalytics shares the report and ESG rating scores with the companies assessed to obtain feedback and verification. In the case of Bloomberg, the rating agency only contacts a company when their qualitative check alerts that a company's data are incorrect or misrepresented to ask the company to check and publicly correct such data. In general, reaching out to companies has a positive impact on ESG data availability because it helps increase coverage; typically, when companies receive an alert, they complete their public information and disclosure.

Other rating agencies directly engaged those companies assessed in their data collection process by administering a structured and standardized questionnaire. This is the case with S&P Global ESG and Moody's ESG Solutions. S&P Global ESG uses its self-developed tool, the SAM CSA survey, which was recently renamed the S&P Global ESG Score after the acquisition of the rating agency by S&P Global in 2019. Moody's ESG Solutions uses information directly provided by the company collected mainly through their proprietary VE Connect Platform, as long as this information is not labeled confidential. Both rating agencies organise management meetings with companies when needed. Interestingly, both S&P Global ESG and Moody's ESG Solutions indicate the degree of involvement of the company assessed in the final output of their ratings.

Table 12. Data sources

ESG ratings and metrics	Publicly available data		Requested company information
	Company disclosure	Others (NGOs, media, etc.)	
Moody's ESG Scores	Yes	Yes	Yes. VE Connect platform (management meetings when needed) The final output indicates the degree of engagement of the company.
Bloomberg ESG Scores	Yes	Yes	No. Bloomberg contacts only when data seems incorrect and asks the company to check and update correct data.
Refinitiv ESG Scores	Yes. They use only publicly reported company data.	Check media for controversial score.	No. Do not specify.
FTSE Russell ESG Ratings	Yes	Yes	No. However, companies are allowed access to their data and review it.

Sustainalytics ESG Risk Ratings	Yes	Yes	No. Although Sustainalytics shares the report and score with the company to get feedback and verify it.
MSCI ESG Ratings	Yes	Yes	No. Although they proactively reach out to companies as part of data review processes.
S&P Global ESG Scores	Yes	Yes. RepRisk is used for identifying controversies.	Yes (Active role) CSA. Around 1,900 actively participate in their assessment. The final output indicates if it is a responsive company.
ISS ESG Corporate Rating	Yes	Yes	No. Companies are invited annually to provide feedback during the verification stage.

Source: Elaborated by the authors

7.3 Type of data and treatment

An important aspect of ESG rating and metrics development is the type of information that the analyst teams collect (qualitative or quantitative) and the treatment given to each type of data. Table 13 reports this information, as described in the different methodology documents of the analyzed ratings and metrics. An excessive value placed on qualitative information (such as whether the company has implemented a certain policy) can lead to high ESG scores without the company performing well. Generally, we can observe an increasing tendency to capture performance indicators (quantitative data) rather than mention policy implementation (qualitative data). For example, Bloomberg highlights a lower weighting for data that only reflects adherence to a policy but does not reflect how good the performance is, whereas S&P Global only uses qualitative data when quantitative data are not available.

Table 13. Types of data and treatment

ESG ratings and metrics	Type of data	Treatment/Reasoning
Moody's ESG scores	<ul style="list-style-type: none"> - Leadership (policies) - Implementation (assessment) - Results assessment (KPI trends) 	360-degree assessment. The metric balances both quantitative and qualitative analysis.
Bloomberg ESG Scores	<ul style="list-style-type: none"> - Quantitative (numeric) - Qualitative binary "policy" fields 	Quantitative weighted more heavily to emphasize the value of quantitative disclosures.
Refinitiv ESG Scores	<ul style="list-style-type: none"> - Boolean: issues that can be answered as Y/N (0/1) - Numeric 	Similar treatment (percentile scores).
FTSE Russell ESG Ratings	<ul style="list-style-type: none"> - Quantitative indicators measuring corporate data disclosure - Qualitative indicators assessing the quality of management - Performance indicators (performance judgments using quantitative data) 	Similar treatment. Points are assigned and are generally 0, 1, or 2 per indicator.
Sustainalytics ESG Risk Ratings	<ul style="list-style-type: none"> - Preparedness indicators (inputs) - Events and performance indicators (outputs) 	Policy implementation is covered by the preparedness indicators, whereas performance is covered in the events and performance indicators and receives more importance.
MSCI ESG Ratings	<ul style="list-style-type: none"> - Metrics 	Do not specify

	<ul style="list-style-type: none"> - Practices - News etc. 	
S&P Global ESG Score	<ul style="list-style-type: none"> - Numeric 	The measure tries to account for performance rather than mention following a policy.
ISS ESG Corporate Rating	<ul style="list-style-type: none"> - Norm-based approach (policies check) - Management approaches and performance 	Management approaches cover the implementation of policies, while the performance indicators are rooted in quantitative information.

Source: Elaborated by the authors

7.4 International frameworks

Most ESG rating agencies generally list international sustainability frameworks that inspire the design of methodologies for their ESG ratings and metrics. Table 14 includes the sustainability frameworks stated by rating agencies in their technical methodology documents. In fact, there is a tendency to include a large list of these frameworks, although it is not clear how they inspire or how they are used to design their metrics. Alongside these international approaches, rating agencies increasingly include references to normative documents such as the EU Taxonomy (e.g., Bloomberg) or the EU Sustainable Finance Regulation (e.g., S&P Global ESG and ISS ESG).

The existence of many different international sustainability frameworks to disclose and measure CS and specific topics, such as climate change, creates complexity for companies in meeting different information requests but also makes it difficult for ESG rating agencies to integrate all of them correctly in their methodologies. Possibly, as these approaches are consolidated and/or new regulations come into force, the integration will become easier.

Table 14. International Sustainability frameworks

ESG ratings and metrics	Declared international frameworks
Moody's ESG Scores	GRI, SDGs, CDP, OECD guidelines, UNGC, PRI, SBTi, SASB, TCFD, ILO, and UN UDHR
Bloomberg ESG Scores	GRI, SASB, TCFD, SBTi, CDP, SDGs, and industry-specific frameworks
Refinitiv ESG Scores	GRI, SDGs, SASB, and TCFD
FTSE Russell ESG Ratings	GRI, ISO 26000, OECD, SASB, SDGs, UNGC, PRI, CDP, TCFD, ILO, and UN UDHR
Sustainalytics ESG Risk Ratings	GRI, PRI, and SASB
MSCI ESG ratings	GRI, SDGs, SASB and TCFD, IIRC, CDP
S&P Global ESG Score	GRI, OECD, SASB, UNGC, PRI, WEF, CDP, GHG protocol, SBTi, and TCFD
ISS ESG Corporate Rating	GRI, OECD, SASB, SDG, UNGC, UN PRI, SBTi, TCFD, and ILO

Source: Elaborated by the authors

7.5 Score structure and aggregation level

All the analyzed ESG ratings and metrics deliver final overall ESG scores that result from the aggregation (usually upon a weighting criterion/criteria) of lower granular data layers. The terminology for each score level varies, although the contents are usually similar. Table 15 illustrates the content and level categorization for the eight different ESG ratings and metrics examined. It is important to note that most ESG ratings and metrics use different low-level indicators based on the industry in which the company operates (e.g., Bloomberg ESG Scores, S&P Global ESG, and ISS ESG). In the case of Moody's ESG Scores, the rating agency uses 40 different model sets of indicators for each industry.

Table 15. Score structure and aggregation level

ESG ratings and metrics	Overall score ←-----→Low-level scores				
	Level 1	Level 2	Level 3	Level 4	Level 5
Moody's ESG Scores	ESG score	3 Pillars E, S, & G	6 Domains	+38 Criteria (E:13, S:19, G:8)	+500 data points
Bloomberg ESG Scores	ESG score	3 Pillars E, S, & G	Issues scores	Sub-issues scores	Fields +2,000
Refinitiv ESG Scores	ESG score ESGC score ESG controversies score	3 Pillars E, S, & G	10 Themes (E: 3, S: 4, G: 3)	630 metrics (186 for each company)	
FTSE Russell ESG Ratings	Overall ESG rating	3 Pillars E, S, & G	14 Themes	300 indicators (average of 125 per company)	
Sustainalytics ESG Risk Ratings	ESG risk rating	Corporate governance Material ESG issues (MEIs) Idiosyncratic ESG issues	20 material ESG criteria	350 indicators	1,300 data-points
MSCI ESG Ratings	ESG rating	3 Pillars E, S, & G	10 Themes (E: 4, S: 4, G: 2)	35 key issues	+1,000 data point
S&P Global ESG Score	S&P Global ESG score	3 Dimension E, S, & G	30 criteria scores	130 question level scores	+1000 data-points
ISS ESG Corporate Rating	ESG corporate rating	30 ESG topics	100 ESG criteria	≈800 indicators	

Source: Elaborated by the authors

7.6 Materiality and priority weighting approaches

The materiality definition and approach are currently one of the most relevant criteria and create major differences among existing ESG ratings and metrics. Materiality relates to those corporate practices that are relevant to shareholders and/or other stakeholders; therefore, the company must provide information about them. For example, European companies under the NFRD must disclose information according to double materiality; that is, companies must provide information about the social and environmental aspects that are financially relevant to them (which mainly worry shareholders) and those CS practices that have an impact on society and the environment (which mainly concern NGOs, governments, and citizens) (European Commission, 2019a). The differences between the definition and approach to materiality are also clear between international sustainability reporting frameworks, such as the GRI and SASB, with the GRI focusing on social and environmental materiality and the SASB on financial materiality. Table 16 describes the type of materiality followed by each of the ESG ratings and metrics and how they are operationalized differently.

The first difference relates to the type of materiality applied by each ESG rating. We observed that most ESG ratings currently seem to adopt a financial materiality approach (e.g., Bloomberg ESG Scores, FTSE Russell, Sustainalytics ESG Risks Ratings, and MSCI ESG Ratings). This means that the focus is on which ESG-related factors have the potential to affect business performance and shareholder returns. For example, in 2018, Sustainalytics ESG Risks Ratings replaced Sustainalytics ESG Ratings, which were more focused on measuring corporate impact on the natural environment and society. This broader adoption of financial materiality in comparison to sustainable materiality is in line with the evolution of the definition of ESG, which is more connected to financial materiality (Eccles et al., 2020; MacNeil and Esser, 2022). According to Sustainalytics, if we want to progress toward sustainable development, it is important that shareholders are involved and can see the direct link between ESG and financial performance (Sustainalytics, 2018).

We also found that a few ESG ratings adopt double materiality (e.g., Moody's ESG Scores, S&P Global ESG Scores, and ISS ESG Corporate Rating). These ratings captured, on the one hand, the financial relevance of ESG factors for companies and shareholders, and on the other hand, considered concerns about the impact of corporate practices on other stakeholders such as the society and the natural environment. The double materiality approach seems to reconcile the two existing perspectives and connect CS with ESG. However, the aggregation of both materiality types into a single overall ESG score raises concerns about how best to interpret the final ESG outcome. Furthermore, there is no detail on which part of the assessment is derived from sustainability materiality and which part of the result is from financial materiality. Indeed, even if the technical

methodology document provides in-depth details, the specific way in which sustainability versus financial materiality is applied cannot be discerned (e.g., S&P Global ESG Scores).

With regards to Refinitiv ESG Scores, it is difficult to discern the type of materiality applied in the methodology. Although, in some parts, it is stated that their main goal is to identify financial ESG-related risks, which seems to indicate a financial materiality approach, when studying their methodology we observed that materiality is linked to the overall impact of each sector on society or the natural environment. Moreover, we did not find any ESG rating that followed pure sustainability materiality.

Table 16. Materiality and priority weighting approach

ESG ratings and metrics	Peer group (E&S)	Priority matrix philosophy	Materiality (E&S)
Moody's ESG Scores	40 Industries	Based on <ul style="list-style-type: none"> - The importance attributed to international reference texts - Industry-specific risks to the company - Risks to its stakeholders 	Double materiality
Bloomberg ESG Scores	Bloomberg Industry Classification Standard (BICS)	At pillar Score, based on <ul style="list-style-type: none"> - The probability of the issue (cost/opportunity) materializing, - The magnitude of the financial cost or opportunity - The timing. (Issue Scores containing only binary fields have their weight reduced by 80%). At Issue Scores, the Disclosure Factor, a number between 0 and 1, emphasizes quantitative disclosure. At Sub-Issue Scores, Bloomberg uses a weighted average, depending on the fit/quality attribute, based on whether the metric is called for in various ESG reporting frameworks and whether the data is comparable.	Financial materiality
Refinitiv ESG Scores	TRBC industry group	<ul style="list-style-type: none"> - For numeric data priority based on the relative proportion that a particular sector contributes to the overall gross number in the ESG universe. - For boolean data, weights are based on the level of disclosure of each data point in each industry group. 	Unclear
FTSE Russell ESG Ratings	FTSE ICB	Score is given based on threshold bands. The threshold bands are higher for companies with high exposure. Most material ESG issues are given the most exposure level. 0 indicates that the issue is not relevant.	Financial materiality
Sustainalytics ESG Risk Ratings	Industry exposure	An ESG issue is material when it has a potentially significant impact on the economic value of a company. Financial materiality is based on a two-dimension approach: exposure and management.	Financial materiality
MSCI ESG Ratings	GICS sub-industry	Risk is material to an industry when it is likely that companies will incur substantial costs in connection with it. Opportunity is material to an industry when it is likely that companies in a given industry could capitalize on it for profit. Additionally, the weightings consider the contribution of the industry, relative to all other industries, to both the negative or positive impact on the environment or society, and the timeline within which we	Mostly financial materiality (but also considers the impact of the industry on the

		expect that risk or opportunity to materialize for companies in the industry.	environment or society)
S&P Global ESG Score	61 industry-specific assessments	130 questions, of which approximately 30 are specific to each industry. Materiality is based on 83% of the international frameworks. Additionally, it considers new hot sustainability topics that emerge.	Double materiality
ISS ESG Corporate Rating	ISS ESG's industry classification system (60 different industries)	Indicators are hand-picked from a pool of over 800 indicators by industry specialists to ensure that the most material ESG issues are included.	Double materiality

Source: Elaborated by the authors

The second difference is related to the application of materiality. We found that there is general agreement that materiality is linked to the industry in which the company operates in the case of Environmental and Social factors (Governance is considered to be across industries). This approach is in line with EU regulations, which recognize the importance of capturing differences between sectors. Some international approaches also establish industry-specific standards, such as the SASB. However, some ESG ratings apply industry-specific materiality by selecting different data points or low-level indicators (e.g., Moodys ESG Scores), whereas others use weights to prioritize the relevance of an ESG factor in a specific industry (e.g., Global S&P ESG Scores). Another difference is that even though ESG ratings apply an industry-materiality approach, the definition of industries varies considerably from ESG rating to ESG rating, as seen in Table 16. The use of different industry classifications hampers this comparison. Furthermore, we found that some ESG ratings also apply country-materiality (e.g., Bloomberg ESG Rating Scores and Refinitiv ESG Scores for Governance), while other ESG ratings combine industry-materiality with company-materiality (e.g., Sustainalytics ESG Risks Ratings).

The final difference is found in the weight each ESG rating agency uses to apply materiality. The description of ESG priority (weight) is generally included in technical methodological documents. Some rating agencies also provide tables summarizing or providing specific examples of their priority matrices. However, not all stakeholders are familiar with these matrices, and the underlying assumption in each election does not always remain clear. Many ESG ratings apply financial materiality based on analysts' judgments. For example, in FTSE Russell's methodology, it is not clear how analysts assign the level of exposure that determines threshold bands for scores.

7.7 Score categorization

The final ESG scores/ratings can be represented by numerical values or qualitative categories/levels. Table 17 summarizes the presentation of the final scores based on descriptions in the technical methodology documents. Our analysis shows an increasing trend in providing numerical values by ESG rating agencies, in contrast with the past trend of providing qualitative categories based on alphabets.

Table 17. Score categorization

ESG ratings and metrics	Quantitative Scores	Qualitative categories
Moody's ESG Scores	- Quantitative score (0 – 100) - Ranking of the company in its sector, region, and the overall universe	---
Bloomberg ESG Scores	- Quantitative (0 – 10)	---
Refinitiv ESG Scores	- Quantitative (0 – 100)	From A+(excellent relative ESG performance and transparency in reporting material ESG data) to D- (insufficient ESG performance and transparency)
FTSE Russell ESG Ratings	- Quantitative (0-5) - Peer relative Scores (1-100)	---
Sustainalytics ESG Risk Ratings	- Quantitative (0 – 100)	---
MSCI ESG Ratings	- Key Issue Score (0-10) - Industry-Adjusted Score (IAS) based on percentiles	From leader (AAA, AA), average (A, BBB, BB) to laggard (B, CCC)
S&P Global ESG Score	- Quantitative (0-100)	---

ISS ESG Corporate Rating	<ul style="list-style-type: none"> - Quantitative (1-4) - Decile rank concerning industry peers (1 -10) - Standardized best-in-class threshold (0 – 100) 	A+ (excellent performance) to D- (poor performance)
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Source: Elaborated by the authors

It is also common for rating agencies to present together with the final scores, percentile values, and industry-peer rankings. This change in the final outcome aims to address critics about the difficulty in making comparisons between different rankings based on qualitative assessments, the increasing interest of investors in making company comparisons to create more profitable investment portfolios, and scholars' demand for quantitative metrics that allow quantitative research.

8 Challenges and recommendations for ESG measurement and disclosure

The emergence of ratings and metrics to measure ESG factors, although can be assessed as positive, also invites an in-depth analysis of how this development should materialize and how it can be improved. Below, we draw attention to the existence of important problems that should be considered in the development of the ESG rating market and regulations, as well as suggestions for overcoming some of the main challenges. We grouped the potential challenges by category to present a clear structure, although most of these problems are strongly interconnected.

8.1 There are several concepts and terminology to refer to CS/ESG practices

As highlighted in Section 2, despite the growing importance of CS/ESG practices in business and society, stakeholders have not yet reached a consensus on how to define and measure CS. In fact, a wide variety of stakeholders (e.g., academics, companies, investors, non-profit organisations, rating agencies, and policymakers) have developed different approaches to the concept and have developed their own methodologies to capture it (Antolin et al., 2016). A common feature of all approaches is that CS/ESG practices are defined as heuristic multi-criteria approaches composed of several dimensions (Schaltegger and Burritt, 2005), which further encourages disparity among them.

The existence of some ambiguity in the terminology and conceptualization of CS/ESG practices can be positive, as it facilitates conversation between different perspectives and captures diversity in stakeholders. The question is whether this ambiguity can be maintained while trying to create reliable metrics that allow comparisons among companies.

EU Taxonomy will probably help generate clarity in this regard. However, the Taxonomy is still partially developed, including only few environmental aspects, and will have to be further developed to fully incorporate the social and environmental aspects. It will also need to constantly evolve to comprehensively capture sustainability-related activities. Moreover, Taxonomy is an EU standard, and it is not known whether it will become a global benchmark. Despite these current challenges, EU Taxonomy seems to be a good instrument to advance the solution to address the lack of consensus and consistency in terminology. Thus, the promotion of taxonomies that are sufficiently dynamic to capture advances and reach a global scale should be promoted to hasten the development of the ESG rating market and regulations and, in general, to provide clarity on what constitutes CS.

8.2 Ratings and metrics from different ESG rating agencies differ substantially

After deeply analyzing the ESG rating agencies' methodologies, it is not surprising that the resulting rating and metrics differ substantially. In fact, the divergence between metrics and ratings has already been highlighted in the literature (i.e., Berg et al., 2019; Chatterji et al., 2016; Christensen et al., 2022).

One of the first studies to draw attention to the problem of vast differences in the ESG scores of different rating agencies is Chatterji et al. (2016). These authors analyzed the ratings of six social raters: KLD, Asset4, Calvert, FTSE4Good, DJSI, and Innovest. According to the authors, there are two preconditions for rater convergence: common theorization, which means overlap in what raters choose to measure, and commensurability, which means overlap in how they measure the overlapping portions of what they define as CSR. Their results showed that these six ratings had low correlations with each other and that the differences remained even when they adjusted for explicit differences in the definitions of CSR held by different raters, implying that the ratings had low validity (Chatterji et al., 2016).

Berg et al. (2019) documented a similar effect. They analyzed data from six rating agencies: KLD (MSCI Stats), Sustainalytics, Vigeo Eiris (Moody's), S&P Global ESG (S&P Global), Asset4 (Refinitiv), and MSCI. These authors decomposed rating divergence into three sources: differing scopes, measurements, and weights. Scope divergence refers to situations in which the ratings are based on different sets of attributes. Measurement divergence refers to the situation in which rating agencies measure the same attribute using different indicators. Finally, weight divergence emerges when rating agencies have different views on the relative importance of attributes. They found that scope and measurement divergence were the main drivers of rating divergence, closely followed by scope divergence, whereas weight divergence was less important. Therefore, the problem of divergence is driven by both what and how it is measured. They also detect a rater effect, which means that a firm that received a high score in one category was likely to receive high scores in all other categories from that same rater. According to Berg et al. (2019), measure divergence is the most problematic. Scope and weights divergence both represent disagreement on the relevance of different ESG performance categories and how

important they are relative to each other; being legitimate that different raters take different views on these questions (Berg et al., 2019).

Most recently, Christensen et al. (2022), analyzed MSCI, Thomson Reuters, and Sustainalytics and found that, despite the calls for attention to the rating divergence problem, ESG rating disagreement has been increasing over time. However, the main conclusion of this study relates to the effect of the level of disclosure on the disagreement among rating agencies. Using Bloomberg's ESG disclosure as a proxy for the level of disclosure, and in contrast to the traditional view that more disclosure reduces disagreement, these authors found that, due to the subjective nature of ESG information, more disclosure is associated with more disagreement. Lack of disclosure on issues that are widespread and significant for a given industry is perceived as a bad attribute and thereby attributes a poor performance to the company. For less significant issues, raters consider the lack of disclosure to be unimportant and impute the average performance in the industry. Moreover, with a higher level of disclosure, the data provider needs to judge whether the disclosure indicates good or bad performance. This gives rise to a level of subjectivity that leads to more disagreement (Christensen et al., 2022). As a result, they highlighted the importance of developing a shared understanding of what constitutes good or bad ESG performance and what metrics to use to capture ESG performance as preconditions for ESG disclosure to decrease disagreement.

Our analysis of the proposals of the main rating agencies currently in the market (i.e., Moody's ESG Solution, Bloomberg, Refinitiv, FTSE Russell, MSCI, Sustainalytics, S&P Global/S&P Global ESG, and ISS ESG) supports the literature and complements it by providing insights into the origin of these differences. According to our analyses, the most noted differences arise from the different approaches to materiality and how agencies try to implement these approaches. Materiality implies choosing what is important to be measured and, therefore, is given greater weight in the aggregation process to create the rating or score. The problem is that although most rating agencies want to dress up the process as quantitative and objective, in most cases, many subjective assessments by analyst teams occur during the aggregation process.

The use of industries as a criterion for selecting which is material (and therefore, as a comparison group) also leads to problems in comparability and interpretation. For example, Simpson et al. (2021) analyzed every ESG rating upgrade that MSCI awarded to companies in the S&P 500 from January 2020 through June 2021 and found that when a peer group swings, companies are upgraded for doing nothing. Comparison by industry, although it may generate problems, is probably a necessary approach to defining materiality since both the impact of business on the environment and society and the risks and opportunities for the company derived from social and environmental aspects are highly conditioned by the industry in which the company operates. In fact, the Non-Financial Reporting Guidelines recognize that it may be appropriate to compare relevant non-financial disclosures among companies in the same sector (European Commission, 2017). However, as illustrated in the previous section, there is an added problem with rating agencies using comparison groups: each rating company chooses different sectors for comparison. This would be something that could be easily solved if standards were extended globally.

Considering the important problem of lack of convergence between ratings, the recommendation is twofold. On the one hand, stakeholders must carefully read the methodology and understand the assumptions behind each rating agency when choosing their weightings. On the other hand, some standardization from international frameworks or regulations, such as in industry categorization, could help favor comparability among metrics.

8.3 Coverage divergences, missing data, treatment, and bias

There is great diversity in the coverage and availability of ESG data. On the one hand, there are geographical differences. Although overall coverage has improved, disparities remain. For example, Refinitiv only includes historical fiscal period data since 2002 for approximately 1,000 companies, mainly in the US and Europe. For other geographic areas, the availability of historical data is lower. Additionally, as ESG disclosures are more developed in Europe, hence, the scores awarded for data availability are usually higher for European companies. On the other hand, the ESG rating universe is dominated by large-capitalization companies. As described in the previous section, most rating agencies only include information on publicly listed companies from the most relevant global and national indices. However, not only is there a tendency for small and non-listed companies to be underrepresented, but larger companies also normally receive higher ESG scores than their peers from rating agencies.

The lack of coverage in some geographic areas and company sizes exacerbates the effects of missing data. Handling missing data is problematic for rating agencies and researchers. Especially during the early 2000s, it was common to observe that, although rating agencies offered many different items (data fields and scores),

they had a high percentage of missing values. To avoid missing data, some rating agencies use imputation techniques that can also create problems when data are used in research.

The first problem is selection bias which can be caused when only the best companies provide data (publicity or requested), creating a false belief that the values in the industry are higher than they really are. Currently, when creating global ratings, rating agencies include penalties for companies that do not provide information deemed relevant to the sector, which could limit the lack of data and selection bias. In either case, the researcher must be very attentive to whether the data are primary or imputed by the rating agency.

Second problem is that in the absence of data, rating agencies use different treatments or imputation techniques. Researchers must have a clear picture of these imputation techniques. For example, the environmental risk score of Trucost is computed based on its data or self-disclosure in annual reports for the universe maintained by Trucost (around 6,000 companies). For all other companies, the score is proxy-based for the industry sector and country. Researchers must keep these imputation techniques in mind when designing research questions.

The lack of geographic and size coverage and associated problems will be reduced as mandatory reporting becomes more widespread. For example, the new CSRD will help, at least in Europe, reduce the problem of lack of data for small companies, as it asks for a broader set of companies to report ESG information. Additionally, as more governments promote greater reporting, geographic coverage may become complete. However, as long as the coverage is not extended, researchers need to pay close attention to the samples they obtain from these databases to ensure that universes are true representatives of the population and do not have selection bias by region or size. They must also be vigilant about whether rating agencies apply imputation techniques and whether they are appropriate for their research objectives.

8.4 Most ESG rating agencies are not fully transparent about their methodology

Rating agencies assess ESG performance using a wide array of metrics collected by a large number of ESG analysts who evaluate data to produce ESG ratings. Each ESG rating agency applies its methodology, which includes algorithms, metrics, thumb rules, imputation techniques, definitions, and sources of non-financial information, most of which are not transparent. Thus, the rating process and methodology are proprietary to each company, and no regulator reviews the methodology or results (Simpson et al 2021).

In the previous section, we made a great effort to decipher these methodologies, but we faced many analysts' judgments that made the final score opaque. For example, Bloomberg is a rating agency that provides the most detailed calculations. However, when determining the value of their prioritization matrix, they state that they are based on internal discussions and interviews with Bloomberg Intelligence industry analysts, analysis and news by Bloomberg Intelligence, and Bloomberg Law and Government, highlighting the financial impacts related to key environmental and social risks in the industry. While all of these procedures are reasonable, they are not detailed and are ultimately based on analyst judgments. We believe that rating agencies should make greater efforts to clarify their methodology. Additional regulations can play an important role by promoting more homogeneous, clear, and transparent standards.

8.5 Most ESG rating agencies do not measure the impact of a corporation on the world

As the previous section shows, most rating agencies focus their efforts on financial materiality because their target audience are mainly investors. In fact, there is a great divergence between traditional CS metrics centered on addressing business impacts on society and the natural environment and ESG metrics centered on identifying sustainability-related factors that might create risks for company returns and survival and hence, investment losses.

This problem has also been reported in the literature. Simpson et al. (2021) called attention to the fact that MSCI rates the potential impact of the world on a company, not the company's impact on the world. This is problematic because MSCI ESG Research dominates the ESG market. According to Bloomberg Intelligence, 60% of all retail money invested in sustainable or ESG funds globally has gone into those funds built on MSCI's Ratings (Simpson et al., 2021). Thus, many investment firms use the MSCI's ESG Rating to justify sustainable labels for stock and bond funds. However, the MSCI ESG Rating does not measure a company's impact on Earth and society; in fact, they show the potential impact of the world on the company and its shareholders. Simpson et al. (2021) illustrated this with the following example:

“McDonalds Corp., one of the world’s largest beef purchasers, generated more greenhouse gas emissions in 2019 than Portugal or Hungary because of the company’s supply chain. McDonald’s produced 54 million tons of emissions that year, an increase of about 7% in four years. Yet on April 23, MSCI gave McDonald’s a rating upgrade, citing the company’s environmental practices. MSCI did this after dropping carbon emissions from any consideration in the calculation of McDonald’s rating. Why? Because MSCI determined that climate change neither poses a risk nor offers opportunities to the company’s bottom line” (Simpson et al., 2021: 2).

Although Simpson et al. (2021) study is based only on MSCI ratings, it is clear from our analysis in the previous section that the ESG metrics market is dominated by the financial materiality perspective; that is, the rating agencies pay attention to ESG factors that may have an impact on the company’s risks and opportunities and, therefore, on the potential returns to investors. In the same vein, Matos (2020) also questioned whether ESG investors really “walk the (green) talk” and highlighted that there is concern over potential “greenwashing” or “rainbow washing”—a false or exaggerated representation regarding how well aligned investments are with sustainability goals.

Not only do the rating agencies focus excessively on financial materiality, but even some international frameworks such as the SASB and regulatory positions of some countries, such as the US, do so. Although financial materiality helps ensure that social and environmental issues are not considered as ancillary to company activities but rather as part of its main valuation, the problem is that this vision leads to only partial consideration of company sustainability (only that which positively or negatively affects profitability), ignoring the rest.

Therefore, in addition to the indicators promoted by rating agencies, which mainly measure financial materiality, regulators may also encourage the publication and valuation of indicators that are more representative of a company’s impact on the environment and society. Greater harmonization of what constitutes good ESG performance (i.e., input, output, outcome, and impact) with standardized metrics across different sectors, business models, and geographies would help rating agencies provide better measures of company impact on the society. Additionally, it would probably be positive for some stakeholders, such as academic researchers, to return raw data instead of indices processed by rating agencies. Even the selection of a few indicators based on scientific rather than market criteria would probably help better represent the impact of companies on the sustainability of the planet.

The philosophy of rating agencies is not in line with the philosophy of the EU Directives that advocate dual materiality, but as rating agencies dominate the market, the importance of financial materiality is intensifying. Therefore, it is necessary for EU regulations to continue to promote the value of dual materiality to have sustainable companies.

9 Conclusions

The growing interest among businesses, capital market participants, professional organisations, and regulators worldwide in incorporating ESG factors into investment strategies has led to the proliferation of proposals to measure the ESG performance of companies by ESG rating agencies, especially those who are increasingly concerned about sustainable investment.

In this study, we analyzed the eight ESG ratings on which ESG investors primarily rely: Moody's ESG Solutions Score (formerly Vigeo EIRIS ESG Scores), Bloomberg ESG Scores, Refinitiv ESG data, FTSE Russell ESG Ratings, Sustainalytics ESG Risk Rating, MSCI ESG Ratings, S&P Global ESG Score, and ISS ESG Corporate Rating.

We observed that most ESG ratings seem to follow a financial materiality approach (e.g., Bloomberg ESG Scores, FTSE Russell, Sustainalytics ESG Risks Ratings, and MSCI ESG Ratings). This means that the focus is on which ESG-related factors have the potential to affect business performance and shareholder returns. This broader adoption of financial materiality in comparison to sustainable materiality is in line with the evolution of the definition of ESG, which is more connected to financial materiality (Eccles et al., 2020; MacNeil and Esser, 2022). These ESG ratings and metrics are oriented toward measuring the risks and opportunities that ESG factors posit for companies as a means to make investment portfolios more profitable, which contrasts with the definition of CS that centers on the identification of the sustainability impacts of companies to mitigate them.

We also found that a few ESG ratings adopt double materiality (e.g., Moody's ESG Scores, S&P Global ESG Scores, and ISS ESG Corporate Rating). However, even if the technical methodology document provides in-depth details, the specific way in which sustainability versus financial materiality is applied cannot be discerned (e.g., S&P Global ESG Scores). This implies that two companies obtaining a similar score might present very different ESG patterns: one more focused on reducing ESG risks and taking advantage of ESG opportunities, and another focused on sustainability mitigation practices. We acknowledge that sustainability and financial materiality are linked because a company managing its ESG risks effectively should imply that its sustainability impacts are not high. However, this is also paradoxical. There are sustainability measures that take time to be recognized as relevant and have the potential to affect company performance. For example, plastic in oceans has caused very serious damage to ecosystems and humans and only recently it has been considered a material ESG topic.

Given the great difficulty for ESG rating agencies in developing ESG ratings and metrics to adequately capture CS, the role of regulation is critical. The EU is a global leader in promoting CS reporting and ESG market transparency. Although the process is not without its difficulties, the continued adoption of new EU regulations such as the EU Taxonomy for sustainable activities, the SFDR and the proposal of the CSRD allows us to be optimistic about the evolution and development in the availability and standardization of CS/ESG information.

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List of abbreviations and definitions

CALCOR	Large-Cap Core Responsible Index
CALDMI	Calvert International Responsible Index
CDP	Carbon Disclosure Project
CERES	Coalition for Environmentally Responsible Economies
CSIF	Calvert Social Investment Fund
CS	Corporate Sustainability
CSA	Corporate Sustainability Assessment
CSR	Corporate Sustainability Reporting Directive
CSR	Corporate Social Responsibility
DJSI	Dow Jones Sustainability Indices
ESG	Environmental, Social, and Governance
ESI	Ethibel Sustainability Indices
EU	European Union
FTSE	Financial Times Stock Exchange
GICS	Global Industry Classification Standard
GSSI	Global Sustainability Signatories Index
GHG	Greenhouse Gas
GRI	Global Reporting Initiative
IAS	Industry Adjusted Score
ICB	Industry Classification Benchmark
IFC	International Finance Corporation
IIRC	International Integrated Reporting Council
ITOL	International Thomson Organization Ltd
ILO	International Labour Organization
JSI	Jantzi Social Index
KPIs	Key Performance Indicators
LSEG	London Stock Exchange Group
MSCI	Morgan Stanley Capital International
NFRD	Non-Financial Reporting Directive
OECD	Organisation for Economic Co-operation and Development
PRI	Principles for Responsible Investment
SBTi	Science-Based Targets: Ambitious corporate climate action
SMEs	Small and Medium Enterprises
S&P	Standard & Poors
SSGA	State Street Global Advisors
SASB	Sustainability Accounting Standards Board
SDGs	Sustainable Development Goals
SFDR	Sustainable Finance Disclosures Regulation

TCFD	Task Force on Climate-related Financial Disclosures
TRBC	The Refinitiv Business Classification
UNUDHR	United Nations Universal Declaration of Human Rights
UNGC	United Nations Global Compact
WBCSD	World Business Council for Sustainable Development
WRI	World Resources Institute
WWF	World Wide Fund for Nature

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