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PROVISION OF NON-FINANCIAL DATA: MAPPING OF STAKEHOLDERS, PRODUCTS AND SERVICES

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Risks & Trend Mapping

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AUTORITÉ DES MARCHÉS FINANCIERS

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Summary

Over the past decade, the development of sustainable finance, combined with the increase in regulatory texts on non-financial reporting and transparency, has contributed to a sharp increase in demand for non-financial data. This has led to significant changes to the provision of non-financial data and services.

This study reviews these changes and provides detailed mapping of the players in the sector (both old/legacy and new entrants) and the services that they offer (broken down into 15 activities). It is based on an analysis of a sample made up of 25 companies, considered as operating in Europe on the basis of their own registered address, that of their clients or of the entities concerned by their service offering. This analysis is complemented by some 30 interviews carried out with stakeholders in the field of the provision of ESG data (asset managers, academics, analysts, credit or ESG rating agencies, other regulators and data providers), as well by the analysis of academic studies.

Originally made up of small-sized players specialising in ESG, based on a fragile business model linked to a mode of remuneration based on the "investor pays" principle, the sector has undergone several phases of concentration over the last 20 years. The traditional players have thus been bought out over time by major financial players such as index producers, stock exchanges, financial data providers or credit rating agencies. Today, the overwhelming majority of these players (80%) are belong to UK and American groups, often listed on the stock exchange. However, two-thirds of the sample are still based in the European Union. This buyout trend also involved with the entry into the market of technological start-ups, offering innovative services and solutions based on the use of new technologies such as big data and artificial intelligence. The size of the players in the sector is therefore highly varied. While one third of the companies analysed (and for which information is available) have fewer than 20 ESG analysts, 20% have more than 200 analysts.

These changes in the industrial landscape have enriched the range of services offered by players. Initially limited to the provision of raw environmental, social and governance data, as well as the production of scores/ratings and analyses assessing the non-financial performance of companies, ESG data providers today offer a wide and diverse range of products and services that adapt to the changing needs expressed by clients, primarily financial institutions (including institutional investors and asset managers) and, to a lesser extent, companies. This new offering frequently includes activities such as portfolio analysis, construction of financial indices, or advisory services to companies in defining their ESG strategy. Other more specific activities are less widespread, such as investment fund management, proxy advisory services, or the evaluation and certification of financing products such as green bonds. This diversification of the service offering is particularly marked among data providers belonging to a group and is likely to give rise to situations of conflict of interest, which must be identified and managed. This risk is all the more pronounced when companies include services (rating or other) paid for by the assessed companies. This is a practice that is likely to expand in the future. In this respect, the adoption of codes of conduct would appear to be a good practice. Although this is observed among the majority of players in the sector, it is not systemic and the scope of the codes remains very broad.

The traditional supply of raw data and ratings has also developed, with in particular an increase in coverage, both in terms of geography, sector and asset class, and in terms of the historical depth of the data available. It is characterised by significant disparities in data collection, reliability and

processing, which are at the root of major discrepancies in the non-financial performance assessments produced. This has been very well documented in the academic literature. These disparities can be explained not only by the lack of consensus on the definition of what is non-financial, but also and especially by the lack of consensus on how to measure a given concept. The academic literature also shows that the results of the evaluation depend on the person who provides the rating ("Rater effect") as well as the quantity of information available about the rated entity (the more information there is, the more the ratings diverge).

These results highlight the need for rating agencies to ensure rigorous and transparent rating processes. However, in this respect, the level of transparency is currently and in broad terms too low and deficient for investors to understand the meaning of ratings, their scope and their limits.

There is therefore a need for greater transparency from non-financial rating agencies. This transparency concerns:

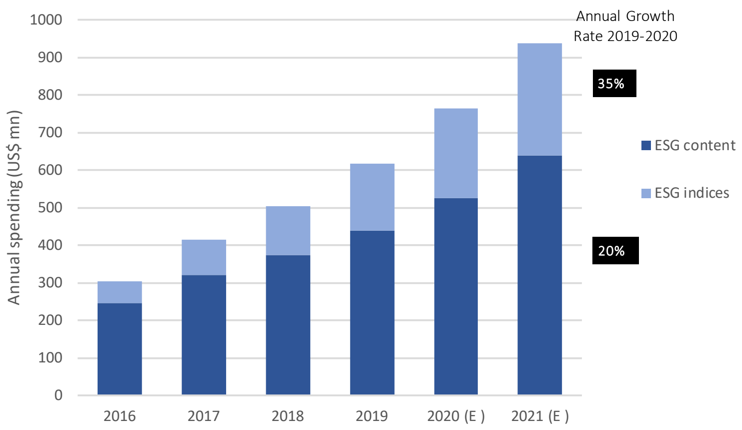
- **the sources of the data used, the methods used to make sure they are reliable and more exhaustive;**
- **the methods, processes and modes of remuneration of ratings;**
- **the identification and management of conflicts of interest.**

INTRODUCTION

Over the past decade, the growing interest in sustainable finance, combined with increased regulatory requirements for due diligence and non-financial reporting, has contributed to a sharp increase in the demand for environmental (E), social (S) and governance (G) data, or, more generally, non-financial data.

According to consulting firm Opimas, spending on ESG data acquisition has increased significantly, from $300 million in 2016 to nearly $900 million in 2019. In broad terms, UBS estimates the market for ESG data and services to be worth more than $2 billion, a figure which, according to its estimates, could exceed €5 billion in global revenue by 2025.

Figure 1: Estimate of expenditure for the acquisition of ESG data



Source: Opimas

Objective and methodology

The purpose of this study is to present a summary of the range of products and services currently offered by providers of data, services and non-financial analyses, and to propose a typology of these players. The study was carried out on the basis of a sample of 25 companies considered as operating in Europe on the basis of their own registered address, that of their clients and/or because of the location of the companies concerned by their service offering. This sample is not intended to be exhaustive,[1] the objective is rather to capture the players most used by stakeholders in the sector, but also to take into account the largest number of categories of players present in this market segment.

The sources used include material published by the samples on their websites, some 30 interviews with ESG data provider stakeholders (asset managers, academics, analysts, credit or ESG rating agencies, other regulators and data providers, some of which are included in the sample mentioned above) various academic reports or studies published by ESG data providers.

To begin with, some biases concerning the definition of fundamental terms need to be clarified. The concept of ESG is defined rather loosely, referring to everything that does not fall within the financial scope. In this sense, ESG is synonymous with non-financial. Additionally, providers of ESG data, services and analyses are defined as any entity that collects raw non-financial data from different data sources (issuers themselves, non-governmental organisations, news agencies, etc.) in order to market them to their clients, in processed or unprocessed form.

[1]The population of non-financial data providers in the world was estimated by the Global Initiative for Sustainability ratings (2018) at more than 100 entities in 2016.

The main producers of raw data, i.e. issuers and non-governmental organisations (NGOs), are therefore excluded from this study as providers of non-financial data.[2] Likewise, internal ESG analysis methodologies developed by asset managers or institutional investors for their own needs are not included in the scope of the analysis. The sample also excludes software companies, as well as consulting and audit firms. All of these companies will, however, appear in this analysis as users of the services and products of ESG data providers.

Initially limited to the provision of raw data, as well as the production of scores/ratings and analyses assessing the non-financial performance of companies, ESG data providers today offer a wide and diverse range of products and services that adapt to the changing needs expressed by their clients, and more generally by all the market stakeholders. The main target groups are financial institutions (including institutional investors and asset managers) and, to a lesser extent, companies, governments, NGOs, which appear to be both producers of raw ESG data and users of this raw and processed data, as well as academia. In some cases, currently still fairly rare, clients may be retail investors.

The increase in the need for ESG data has resulted in significant changes to the industrial landscape of the sector, such as series of mergers and acquisitions and the arrival of new players. In the last decade, traditional financial players (credit rating agencies, index administrators, market operators, etc.) have acquired the main traditional players. At the same time, fintechs (sometimes incubated by the major players) have emerged in this landscape, proposing an innovative offering and/or offerings under construction, with more blurred contours.

Today, the vast majority of players or their parent companies have their registered office outside the European Union and most of the products and services that they offer are not subject to any regulation (database provision, ESG ratings). Either that or the players offering them are subject to regulation but for activities that are not focused on ESG issues, such as activities providing benchmark indices (Benchmark Regulation), credit ratings (Regulation on Credit Rating Agencies) or research activities (MiFID II Directive and Regulation).

[2] However, non-profit organisations marketing non-financial data are included in the sample.

1. OVERVIEW OF STAKEHOLDERS

The first private players specialised in the collection of environmental, social and governance data emerged in the 1980s and their numbers increased with the development of sustainable finance. Originally made up of mostly small, European players, specialised in the production of ESG data, analyses and ratings, ESG data provision landscape changed profoundly during this period, after series of mergers and acquisitions and the arrival of new players on this market.

1.1. A RAPIDLY CHANGING INDUSTRIAL LANDSCAPE

1.1.1 The concentration of the traditional ESG specialists has diversified the range of products and services offered

Based on a fragile business model, due in particular to the method of remuneration (which, for most players, is based on the "investor-pays" model) and the small size of most players, which does not necessarily enable them to cope with an increase in demand, this market segment has undergone several phases of consolidation in the last two decades. In recent years, this shift has gained momentum with the development of cross-border transactions which has notably led to the takeover of many companies in continental Europe by large Anglo-Saxon companies (American and, to an extent, British-**Table *1***), seeking to benefit from economies of scale and scope. This was the case in particular in 2019, where there were eight transactions.

Table 1: Major mergers and acquisitions on the ESG data provision market since 2009

Year	Month	Target	Acquirer
2009	February	Innovest (US)	Riskmetrics (US)
	September	Merger of Sustainalytics (Netherlands) and Jantzi Research Inc. (CND)	
	November	Asset 4 (Switzerland) KLD (US)	Thomson Reuters (US) Riskmetrics (US)
	December	New Energy Finance (UK)	Bloomberg (US)
2010	March	Riskmetrics (US)	MSCI (US)
2012	June	Responsible Research (Singapore)	Sustainalytics (Netherlands)
2014	June	GMI Rating (US)	MSCI (US)
	July	zRating (Switzerland)	Inrate (Switzerland)
2015	September	Ethix SRI Advisors (Denmark) ESG Analytics (Switzerland)	ISS (US) Sustainalytics (Netherlands)
	October	Fusion Vigeo (FR) /Eiris (UK)	
2016	October	Trucost (UK)	S&P Global (US)
2017	June	South Pole / Investment Climate Data Division (Switzerland)	ISS (US)
	July	Sustainalytics (Netherlands) – acquisition of a 40% stake	Morningstar (US)
2018	March	Oekom (Germany) Solaron (India)	ISS (US) Sustainalytics (Netherlands)
2019	January	GES International (Sweden)	Sustainalytics (Netherlands)
	March	Vigeo-Eiris (FR)	Moody's Corp (US)
	June	Beyond Ratings (FR)	London Stock Exchange (UK)
	July	Four Twenty Seven (US)	Moody's Corp (US)
	August (in progress)	Refinitiv (formerly Thomson Reuters, US)	London Stock Exchange (UK)
	September	Carbon Delta (Switzerland)	MSCI (US)
	October	Ethical Corp (US)	Thomson Reuters (US)
	November	Robecosam AG-ESG Ratings Business (Switzerland)	S&P Global (US)
2020	January	Ecovadis (FR)- Acquisition on a non-controlling interest	CVC Growth Partners (US)°
	April	Sustainalytics (Netherlands) – 100% stake	Morningstar (US)
	October	TrueValueLab (US)	Factset (US)
	November	ISS (US) Merger of IHS Markit (US) and S&P Global (US)	Deutsche Börse (Germany)

Source: Company releases

Few companies have been fully integrated into the acquiring company. Given the potential conflicts of interest between the various activities and services offered, almost all of the companies acquired retain their legal personality by opting for the status of a subsidiary of the acquiring entity.

All players offer database provision services and produce non-financial ratings. In addition to this rating activity, most of the traditional ESG players have developed a range of related services with a non-financial dimension. In this respect, it is to be noted that the players with the most diversified offering form a large group. Some activities are quite common among players: portfolio analysis, screening, creation of indices for investors, advisory services to companies in defining their ESG strategy. Others are more specific: asset management, proxy advisory services, evaluation/certification of financing products.[3] A minority of companies in the sector propose a more limited/select offering: specialisation in a specific data type and/or a specific activity. This type of player is usually linked to public institutions or associations (such as CDP, which specialises in environmental issues) or independent players with a high degree of specialisation (geographical, for example, like Inrate, which focuses on Switzerland).

1.1.2. Emergence and rise of new entrants

- ☐ **Market data providers**

This category comprises general financial information providers (Bloomberg, Refinitiv), index producers (MSCI), as well as stock exchanges (London Stock Exchange or more recently, Deutsche Börse). These companies have invested heavily in the ESG sector in the last decade, by acquiring specialised data providers, as demonstrated by MSCI's purchase of KLD, Innovest, Riskmetrics and Carbon Delta.

For these companies, ESG is only one component of a comprehensive offering. Consequently, index producers and stock exchanges have tended to maintain their traditional scope of activity despite these acquisitions, especially when these traditional activities were already regulated or were likely to create conflicts of interest with the acquired activities. An iconic example of such a situation is the acquisition in 2019 by the London Stock Exchange of the French company Beyond Ratings, for its expertise in ESG analysis and its internal databases. Beyond Ratings' credit rating agency activity was discontinued after the transaction, less than 3 months after obtaining ESMA authorisation to carry out this activity. We can also cite the sale by MSCI of the proxy advisor ISS in 2014.

However, the range of ESG products and services specifically offered today appears to be particularly well developed: in addition to providing basic products (raw or estimated data, indicators, ratings and rankings, indices), players offer tools for portfolio analysis, as well as screening tools for assessing investment trends and performance.

- ☐ **Financial rating agencies**

The major credit rating agencies, also known as financial rating agencies, all now incorporate ESG criteria into their analyses and credit ratings. To bolster their expertise and analytical capacity, two of these companies, Moody's and S&P, have acquired ESG data providers (Trucost for S&P, Four Twenty Seven for Moody's) and ESG ratings firms (RobecoSAM's ESG rating subsidiary for S&P, Vigeo-Eiris for Moody's). A similar shift has been observed for smaller agencies. For example, the merger in Europe between the Ethifinance non-financial rating agency and the Spread Research specialist research firm and merger of the Spread Rating credit rating agency with the Qivalio group.

- ☐ **Technology start-ups**

The significant increase in the number and diversity of data produced for the ESG and non-financial ratings sectors, combined with the development of new technologies, has led to the emergence of a new type of player, whose main activity is the collection of data obtained from other providers and the aggregation of ratings, such as CSRHub.

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[3] See Part 2.

For some players that claim to be part of this sector, it is sometimes unclear where the line lies between the provision of aggregated data and notes or simply IT tools and solutions that allow users to do this on their own.

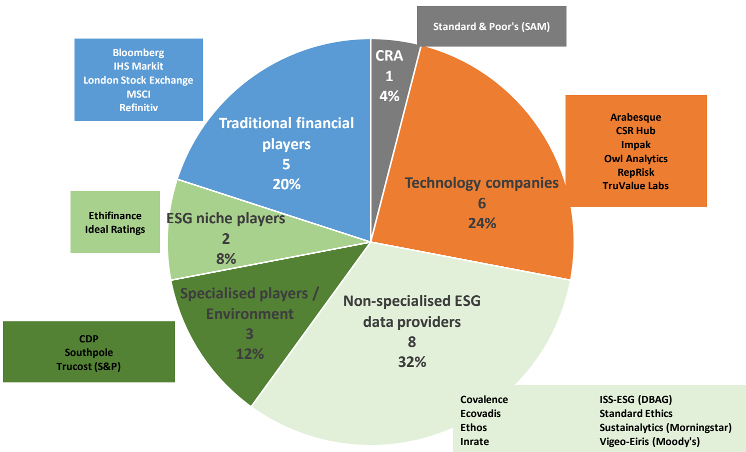
- **Audit and consulting firms**

Although these firms are not included in the sample studies because they do not provide ESG data directly, it is worth noting the growing competition from consulting and audit firms in the ESG service field. Nevertheless, most of these players stick to their core business. The main activities proposed consists in strategy and financing advisory services, through the external assessment of green bonds, as well reporting assistance.

1.2. MAIN CHARACTERISTICS OF THE SAMPLE ANALYSED IN THIS STUDY

The sample analysed includes 25 companies, either domiciled in the European Union or which offer services partly involving entities domiciled in the European Union. Half of them are traditional ESG players who entered the market more than 15 years ago. Most of them are non-specialists, covering all the environmental, social and governance components and many different types of players (companies, States, etc.). However, the sample nevertheless also includes more specialised players, in particular on climate-related issues (i.e. CDP, an independent player, as well as Southpole and Trucost -acquired by Standard&Poor's) or on a category of players (Ethifinance, specialised in the SME-ETI segment) or assets (IdealRatings, originally focused on Islamic finance). Lastly, the rest of the sample is made up of technology start-ups, almost all of which were created after the financial crisis of 2007-2008, and market participants, including financial data providers (Bloomberg, IHS Markit and Refinitiv), one index producer (MSCI) and one stock exchange (London Stock Exchange).[4]

Figure 2: Composition of the sample



Source: AMF

1.2.1. Legal status and geographical location

Nearly all the players included in our sample are commercial companies (public limited or limited liability companies). However, the sample also includes non-profit organisations (CDP)[5] or foundations (Ethos), although more marginally.

[4] In 2019, the London Stock Exchange launched an offer to acquire Refinitiv, which has not yet been finalised since the deal is still under investigation by the European antitrust authorities at the end of 2020. More recently, Deutsche Börse announced in November 2020 that it will acquire a majority share of approximately 80% in ISS.

[5] CDP was included in the analysis sample because it is partly financed by the marketing of non-financial data.

Acquisitions made over the last two decades may have had an impact on the legal personality of target companies. For example, some of the absorbed companies have been fully merged with the acquiring company (e.g., Oekom by ISS). However, in most of the transactions observed recently, the target companies have kept their legal personality and have the status of subsidiaries. Vigeo-Eiris is thus a subsidiary of Moody's, a credit rating agency registered in Europe under the Credit Rating Agencies Regulation. In another example, MSCI's ESG business is handled by a dedicated subsidiary, MSCI ESG Research.

Another consequence of the mergers and acquisitions transactions recorded in the sector is that 80% of the companies in our sample have their head offices outside the European Union, mainly in the United States, and to a lesser extent, in Switzerland or the United Kingdom. More than half of these 20 players (55 %) nevertheless have a presence in the European Union in the form of subsidiaries, branches or offices.

It may be noted that companies in the sample with their head office in Switzerland have a comparatively smaller presence in the European Union than British or American companies. Most of them have a local presence.

Overall, **nearly two thirds of companies in the sample have a presence in the European Union** in one form or the other (head office, subsidiary or branch).

Figure 3: Location of head office

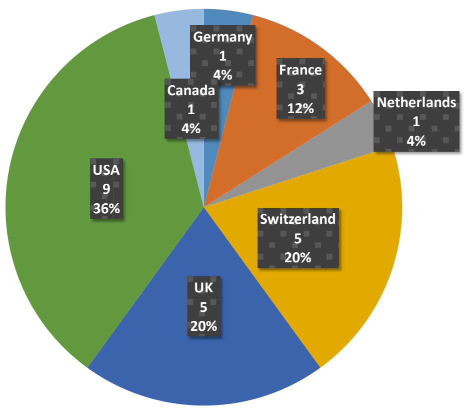
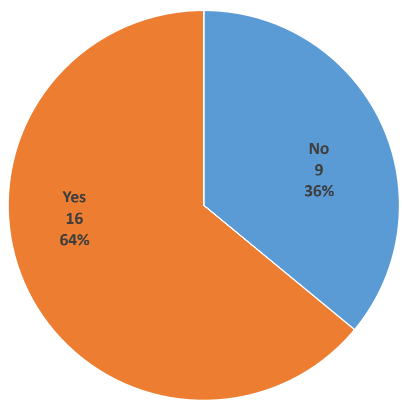


Figure 4: Presence in the European Union (head office, Subsidiary, Office)



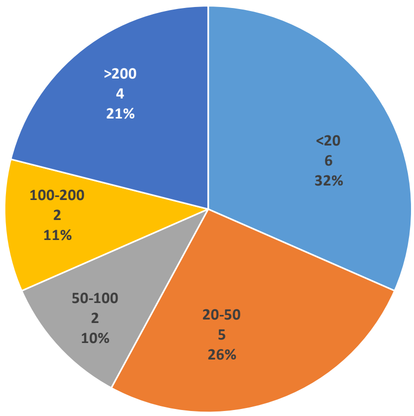
Source: AMF

With the increasing concentration observed in the sector, most data providers now belong to a group. In one third of cases, the group is listed.

1.2.2. Number of ESG analysts

We were able to estimate the number of ESG analysts for three quarters of the sample, i.e. essentially players traditionally specialised in ESG and technology start-ups. For a third of these companies, the number of reported ESG analysts is less than 20. These are traditional players with a local presence, or technology start-ups where most of the staff are data scientists rather than analysts specialising in the non-financial sector. Over 20% of the companies in the sample have more than 200 ESG analysts; they are all companies with a historical focus on the ESG sector (CDP, Vigeo-Eiris, Sustainalytics, ISS ESG).

Figure 5: Number of ESG analysts (N=18)



Source: AMF

1.2.3. Remuneration models

ESG data providers are primarily remunerated based on the "investor pays" model for their ESG rating activity (referred to as declarative rating) and the provision of the ESG data underlying the rating. Only a marginal part of the sample operates on the "issuer-pays" model for its ESG rating activities. In this case, the amount invoiced depends on the size of the rated entity. Of the players in our sample, only two companies (Standard Ethics and Ecovadis) apply this model. However, a rating agency which mainly uses the "investor-pays" remuneration model may be required to produce ratings requested by issuers on an ancillary basis..

Regardless of how ESG data providers are remunerated, non-financial rating activity, when combined with other types of services, such as consulting, contributes to increasing the risk of conflict of interest. To limit these risks, rating activities and advisory services are generally carried out in separate subsidiaries and/or internal control procedures provide for 'Chinese walls', which are explicitly described in codes of conduct. However, these practices are not systematic, and are even infrequent for certain players in the sector, such as technological start-ups.[6]

In this case, more than half of the entities in the sample publish a code of conduct and ethics, which generally address, in a more or less detailed manner, the management of conflicts of interest, in addition to the main principles and values of the players (independence, impartiality, transparency, etc.).

[6] It should be noted that these practices are not specific to players specialising in ESG. They are found with all players of the sector (for example, with index producers).

1.2.4. Certification of players

Some of the traditional players in the ESG sector have been or are being certified. Three companies in the sample (MSCI, RepRisk and Oekom Research) have been awarded the Deep Data Delivery Standard, while three others (Vigeo-Eiris, Ethifinance and Oekom Research) have been awarded the Arista standard (Box 1). These standards are issued on a voluntary basis and are aimed at guaranteeing the implementation of good practice, in particular with regard to the data collected (coverage, sources, quality) and the transparency of the methodologies used, the rating processes, the management of conflicts of interest, as well as compliance with key principles such as independence. It should be noted, however, that the Arista voluntary quality standard is no longer active today, although some companies still refer to it on their websites. Lastly, two technology start-ups, CSRHub and Impak, have received B Corp certification, awarded to commercial companies that meet ESG and transparency requirements.

Box1: Voluntary quality standards: a field worthy of a rethink? The example of Arista certification

The ARISTA (formerly CSRR-QS) standard is a European **voluntary quality standard** created in 2002 by the Association for Independent Corporate Sustainability and Responsibility Research (AI CSRR) in consultation with all stakeholders (data providers, issuers, investors) and with the support of the European Commission. The aim was to define a framework for self-regulation and to promote the development of best practics in the field of CSR rating and research. This standard includes guidelines and rules, commitments and a framework for verifying the transparency, quality and integrity of non-financial research processes.

In 2012, about a dozen companies received the Arista standard recognition: CAER (Australia), ECODES (Spain), Ecovalores (Mexico), EIRIS (United Kingdom), EthiFinance (France), GES (Sweden), Greeneye (Israel), IMUG (Germany), Inrate (Switzerland), KOCSR (Korea), Oekom research (Germany) and Vigeo (France).

The objectives are to encourage companies to adopt organisational characteristics that guarantee their independence and objectivity; to identify risks of conflicts of interest and put in place procedures to manage them; improve quality management systems; encourage transparency - including methodologies, and independent third party verification of stakeholders' declarations; promote research characteristics regarded as best practice. With regard in particular to the transparency of methodologies, the standard provides for differentiated constraints depending on whether they concern auditors (total transparency) or users (transparency limited to the main principles and therefore not very restrictive).[7] The charter specifies that the ARISTA quality standard is broadly applicable to any player providing products and services related to responsible investment regardless of the product provided. With regard to ratings, the standard also stipulates that rated entities may appeal the result of their assessment.

The certificate of compliance with the standard was awarded for a three-year period, after an audit by an independent body, repeated every year, and which specified, based on "comply or explain" principle, all deviations from the Independence Policy defined by the standard.

In 2020, Arista's website was disabled and information about the standard became relatively inaccessible. However, references to a certification continued to be visible on the websites of dome players (Ethifinance (certification obtained in 2005), Vigeo Eiris (certification obtained in 2009), etc.).

[7] "… shall disclose publicly all the information needed for users and stakeholders to understand its research and evaluation methodologies **in a general way**, including the criteria, ratings, grades, symbols, …"

2. A DIVERSIFIED AND CONSTANTLY EVOLVING PRODUCT AND SERVICE OFFERING

All of the providers of ESG data, services and analyses analysed offer their clients access via platforms to raw ESG data as well as indicators and evaluations created from this data. In addition to this "basic package", over the last decade, players have sought to diversify their offer in order to differentiate themselves from the competition and adapt to the growing and specific needs expressed by their clients. This offering of additional services may take the form of generic services but also, and increasingly, bespoke services. It is important to bear in mind the profoundly changing and innovative nature of this offering.

2.1. PROVISION OF RAW AND/OR PROCESSED DATA

"Data" refers to the representation of information in a conventional form aimed at making it easy to process.[8] These data are the subject of a commercial offering for access to restricted or large data,[9] through subscriptions.

There are two different types of data:

(i) **raw data,** i.e. quantitative and/or qualitative data (including news) collected and re-disseminated without any alterations, but also data that has been subjected to reliability or estimate checks

(ii) **processed data**, which refer to

- **indicators** created from raw data (including Key Performance Indicators) and used in particular to create non-financial ratings and scores
- **non-financial ratings and scores**, defined here as the synthetic expression an opinion on the assessment of entities (companies, States, supranational bodies or local authorities) or financial securities based on environmental, social or governance criteria.

2.1.1. ESG raw data offering

- **A very wide data offering range**

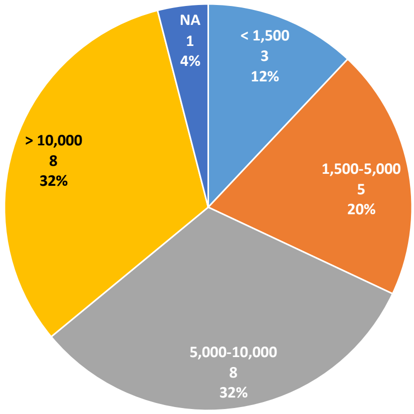
In recent years, the supply of raw data has seen a sharp increase in coverage in terms of geography, sector and asset classes analysed. With the exception of a few data providers with a limited geographical scope (e.g. Inrate or Covalence for Switzerland), all of the ESG data providers under review boast international coverage. Nearly two thirds of the players in the panel analysed provide data on more than 5,000 entities, or even 10,000 for a third of them (Figure 6). This figure must be put into perspective, however, considering the number of companies or groups of companies that exist worldwide. France alone has three million companies and more than 450,000 groups, according to the national statistics institute, INSEE. If we only consider listed companies, the OECD estimated that there were 41,000 listed companies in 2017.

Data providers have also diversified the asset class covered by the data produced: initially targeted at shares of listed companies, the data of a third of the players reviewed today also cover corporate bonds and sovereign debts and, to a lesser extent (20% of players), securities of unlisted companies. More marginally, data providers propose an analysis of hybrid securities (convertible bonds), infrastructure or real estate projects. Finally, the coverage of small and medium-sized enterprises, which until now had been the domain of specialised players (such as Ethifinance), is now mentioned by many players, although it is still difficult to estimate the coverage.

[8] Official Journal of 22 September 2000, revising the decree of 22 December 1981.

[9] Directive 96/9/EC of the European Parliament and of the Council of 11 March 1996 on the legal protection of databases defines a "database" as a: "collection of independent works, data or other materials arranged in a systematic or methodical way and individually accessible by electronic or other means (Article 1, paragraph 2).

Figure 6: Number of companies by ESG data providers



Source: AMF

Raw data marketed also offers a very substantial historical range, with more than 15 years for most of the players analysed and up to twenty years.

The extension of the scope of analysis of ESG data is due to an increasing level of competition in this market segment, as well as the growing needs expressed by investors,[10] partly linked to the actual or future implementation of regulatory obligations (such as, in Europe, the Disclosure and Benchmark Regulations). In this sense, the action of public stakeholders (regulators, legislators) can be considered to be partly responsible for the growth of the sector. The extension of scope has also been facilitated by the systematic use of diverse sources (companies, press agencies, NGOs, etc.) thanks to the increasing use of new technologies (artificial intelligence, automatic extraction of data from websites -scraping-, transformation of unstructured data collected into structured data, etc.). Several data providers insist on the use of these techniques, which are a source of differentiation and added value compared with the competition, like Owl Analytics and Arabesque on the use of Big data, RepRisk on the use of Machine learning or TrueValueLab for unstructured data analysis.

- **Varied collection processes**

Raw data is collected according to methods specific to each player. Most of them use a variety of information vectors and channels: questionnaires sent to companies, use of information published by the entities concerned by the data or by trusted third parties (press agencies, non-governmental agencies), use of data produced by other suppliers of the sector through subscriptions or partnerships. The information collected may be supplemented, specified or corrected through discussions with the companies to which the data pertains. This is the case for most of the traditional players in the sector. Some players such as MSCI, encourage companies to check via a reporting platform to which they are given access and to make corrections if necessary. Although this policy of dialogue is not practised systematically by data providers, a trend is growing. Other companies, primarily technology start-ups (for example; Covalence, RepRisk, or CSRHub), state on the contrary that they refuse to use the companies on which the data are based as a source, on the grounds that the data are biased in their favour.

Due to their varying degrees of availability and the low level of standardisation, the issue of the quality of non-financial data collected is taking a central dimension. More than half of the data providers in the study sample report that they perform data reliability checks. This is done through automated and/or manual checks by analysts who compare the data obtained from different sources and/or sources, and conduct discussions with the entities being reviewed. Additionally, most of the data providers we analysed perform data gap estimates to meet the increasing demands of customers for database coverage. However, on the whole, the information provided by

[10] See the 2020 edition of the "Rate the Raters" annual survey.

players concerning the sources used, the reliability of the data and data gap estimates is highly disparate. This appears to be more developed among suppliers whose commercial offer also covers financial data, as well as among highly specialised ESG players (in particular CDP).

2.1.2. Processed data offering: ESG indicators and ratings/scores

Investors use raw ESG data to create their own analysis and evaluations. These data are also used by data providers themselves to offer additional products and services. Indicators deemed to be relevant for the analysis are therefore created from raw data. Part of the data will then be used to determine scores and ratings.

Ratings and scores serve the same objectives, namely the evaluation of an entity, asset or project against ESG criteria, but differ in the resources used. Scores are produced using quantitative models, primarily algorithms.[11] This evaluation model is widely preferred by financial data providers as well as technology start-ups. Ratings are the result of a combination of quantitative models and qualitative analysis. They are usually backed up by analyst reports, which explain and justify the rating. ESG rating agencies also produce thematic or sector-specific research reports. This is the model adopted by traditional non-financial rating agencies.

In a similar manner to financial rating agencies in 2008, today data providers insist on the fact that non-financial ratings, scores and research notes reflect an opinion and do not in themselves constitute a recommendation to buy or sell a financial security. It should also be noted that although their definitions are not identical, in practice the terms "ratings" and "scorings" are used indiscriminately.

While the evaluation of non-financial performance is the most prevalent, there is now a growing trend for the evaluation of countries and collective management funds. The traditional player regarding collective management funds is Morningstar. This rating agency measures the ESG performance of funds based on the ratings of the securities included in portfolios. These ratings are produced by its subsidiary Sustainalytics. More recently, in 2016, MSCI also launched a similar product, MSCI ESG Fund Rating, as did CDP in 2017 with Climetrics, designed in partnership with ISS, and Refinitiv in 2020.

Rating agencies publish guidance on their methodology and provide additional information on request. However, since the methodologies are proprietary, the information provided is often incomplete, especially with regard to the precise description of the variables used in calculating the scores, the processing of data gaps and the weighting of the various variables and components of the score as well as the calculation methods. Some providers are however better than others. They include CDP or market players such as MSCI, Refinitiv and Bloomberg. The above market players, no doubt more accustomed to greater transparency in their activity as producers of financial data, thus provide detailed information about how they deal with data gaps, and the methods used in calculating the indicators selected. Similarly, there are only a few data providers, such as Ethifinance, who explicitly describe the rating process. The ability for rated entities to appeal against their rating does not seem to be very well-developed.

- **Principles creating ESG ratings and scores**

Several key issues are selected for each environmental, social or governance component. Often defined at the sectoral level,[12] the number of issues varies widely, ranging from three[13] for CDP, which, it should be remembered, focuses on environmental issues, to more than one hundred, for financial data providers, for example. These differences stem from whether or not the data provider is specialised, as well as by the choice of the reporting and analysis framework(s) to which they refer. The choice of benchmark reflects the type of approach adopted by the

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[11] Regulation (EU) No.°462/2013 on credit rating agencies defines a "credit score" as "a measure of creditworthiness derived from summarising and expressing data based only on a pre-established statistical system or model, without any additional substantial rating-specific analytical input from a rating analyst".

[12] Nevertheless, some agencies, like Sustainalytics and Morningstar in 2019 have recently decided to move away from best-in-class methodologies founded on sectoral comparisons, to methodologies that evaluate companies independently of their sector.

[13] This number is logically lower for specialised players: For example, CDP, analyses three key issues: "Climate change", "Forests" and "Water Security".

rating agency in terms of evaluation. Scores and ratings are aimed at assessing the exposure of rated companies to non-financial risks and the way in which these exposures are managed. Basically, some non-financial credit rating agencies will focus more on the impact of these exposures on a company's business mode, and ultimately on the financial value of its assets, and using the SASB benchmark. This mainly concerns market participants such as MSCI. Others have a more holistic approach and will thus focus on the environmental, social and/or governance impact on the environment and society at large. Most of these agencies refer to the GRI standard.

It should be noted that most ESG scores and ratings are not defined in absolute terms, but in relative terms, comparing a company to a peer group.

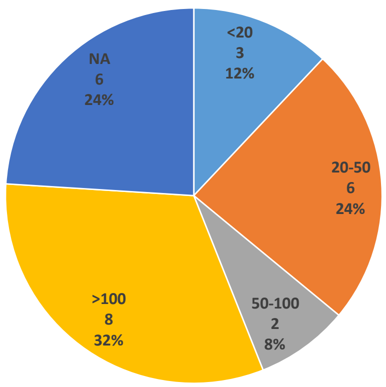
Each of these ESG issues are associated with indicators, the number of which is also highly variable. The criteria for choosing these indicators is not always very explicit, as is the definition of the criteria themselves and their weighting in the evaluation. However, several eligibility factors are cited, such as the availability and comparability of data, as well as the relevance of the indicator to the issue at hand, which refers to the question of "materiality" (financial and/or holistic).

Most non-financial rating agencies also take major disputes and controversies into account in their ratings and even produce a specific score on this subject for certain rated companies. Some rating agencies have also developed more specific scores, such as environmental scores measuring the extent to which companies contribute to global warming.

The relative weight of quantitative and qualitative analysis within the population under review may vary. Some non-financial rating agencies, such as Vigeo-Eiris or Sustainalytics, insist on the importance of qualitative metrics, as a way of honing the diagnosis and gaining a better understanding of the specific features of the policies and processes implemented by the rated players. Conversely, agencies that adopt a "financial materiality" approach will tend to prefer quantitative data. Eccles and Stroehle (2020) show for example that the indicators used by MSCI, which applies a "financial materiality" approach (value-based organization), are quantitative indicators in more than 90% of cases, compared with only 20% for an agency like Vigeo-Eiris, which has a more holistic approach (values-based organization).

The weight of human intervention and qualitative assessments in the rating process can be roughly approximated by the ratio of the number of rated entities to the number of ESG analysts. Thus a rating agency which has a high number of ratings assigned per analyst and a high number of criteria analysed will be more likely to present a methodology based exclusively on algorithms. For nearly half the traditional ESG rating players, the number of companies tracked per analyst does not exceed 50, and even 20 in 12% of cases. This reflects a methodology where the analytical and qualitative aspect is particularly significant. This is the case in particular for Vigeo-Eiris and Ethos.

Figure 7: Number of entities rated per ESG analyst



Source: AMF

The ratings and scores produced are generally revised each year. Some data providers, in particular technology start-ups, say that they carry out several updates during the year, however. Ratings are updated monthly at Owl Analytics and Truevaluelab, weekly in the case of Refinitiv and even daily for Arabesque and RepRisk.

- **Validation of methods**

Less than half of the ESG rating agencies reviewed (40%) declare that they use external expertise, either through a scientific advisory board (five agencies), or through a group of technical experts. These experts may be appointed to ensure the robustness of the methodologies used and/or their application by analysts in the rating process. They may also be called in on technical aspects in the event of a dispute with the rated companies, as is the case with Vigeo Eiris.

- **Publication and disclosure of ratings**

The disclosure of ratings largely depends on the method of remuneration. Accordingly, ratings produced at the request of the rated company and therefore paid for by the company are considered to be the property of the authorised representative, who is alone in deciding whether or not they must be published. That is why ESG rating agencies do not publish ratings when they produce an ESG rating at an issuer's request. Conversely, some agencies, like Arabesque, Morningstar and RepRisk, systematically publish ratings when they are remunerated by investors.

However, regardless of how they are remunerated, a good number of ESG rating agencies, when participating in the production of indices, publish the ratings of the entities included in these indices. Standard Ethics is remunerated based on the "Issuer-Pays" model and therefore publishes the ratings of the listed companies included in its Standard Ethics Index. The practice is moreover tending to develop with the entry into force of the Benchmark Regulation. For example, MSCI, which had already been publishing the scores of 2,800 stocks making up its MSCI ACWI index since November 2019, announced in May 2020 that it would extend this practice to all components of equity and mixed indices falling within the scope of the Benchmarking Rules.[14]

The disclosure of ratings also depends on the type of product rated. For example, it is more systematic with fund ratings than for company ratings. Agencies such as CDP, Morningstar and MSCI follow this practice. This disclosure may strike a chord with investors, including retail investors, and may even influence their investment decisions.

Lastly, the disclosure of ratings is also dependent on the status of data providers: non-profit companies like CDP make their ratings public.

Several non-financial rating agencies have also formed commercial partnerships with other players in the sector to distribute the ratings they produce more widely, through partnerships. For example, Bloomberg publishes the ratings of CDP, Sustainalytics, ISS, RobecoSAM and, since 2020, MSCI, on its terminal.

Lastly, it would appear that most of the rated companies pay for access to their rating/score or to the underlying analysis (Vigeo-Eiris, Sustainalytics, Ecovadis).[15] Of the suppliers analysed, only MSCI and ISS ESG clearly state that they give companies free access to their data and analysis reports.

- **Academic studies agree that there is a lack of convergence of non-financial ratings and there is a need for greater transparency about methods**

Many academic studies have been published in recent years about the issue of ESG ratings. They all conclude that there is very little convergence of non-financial ratings (Semenova and Hassel (2015), Chatterji, Durand, Levine and

[14] “MSCI ESG Research makes MSCI ESG Ratings of over 2,800 companies publicly available, November 25, 2019.
“MSCI makes public ESG metrics for indexes and funds to drive greater ESG transparency”, May 20, 2020.
[15] AFEP-MEDEF (2019): "French initiative on the relations between companies and non-financial rating agencies: Summary of the results and recommendations", January

Touboul (2016), Dorfleitner, Halbritter and Nguyen (2015); Berg, Koelbel and Rigobon (2020)). Berg *et al* (2020) thus evaluate the correlation between the non-financial scores of six non-financial rating agencies[16] at 0.54 on the average, a correlation that is lower for scores relating to social and governance dimensions (0.42 and 0.30 - Table 2).

Table 2: Correlation between non-financial ratings

	KL SA	KL VI	KL RS	KL A4	KL MS	SA VI	SA RS	SA A4	SA MS	VI RS	VI A4	VI MS	RS A4	RS MS	A4 MS	Average
ESG	0.53	0.49	0.44	0.42	0.53	0.71	0.67	0.67	0.46	0.7	0.69	0.42	0.62	0.38	0.38	0.54
E	0.59	0.55	0.54	0.54	0.37	0.68	0.66	0.64	0.37	0.73	0.66	0.35	0.7	0.29	0.23	0.53
S	0.31	0.33	0.21	0.22	0.41	0.58	0.55	0.55	0.27	0.68	0.66	0.28	0.65	0.26	0.27	0.42
G	0.02	0.01	-0.01	-0.05	0.16	0.54	0.51	0.49	0.16	0.76	0.76	0.14	0.79	0.11	0.07	0.30

Source: Berg *et alii* (2020)

It is interesting to note that the divergence of ESG ratings has led to a new offering called rating aggregation: using raw data, indicators and existing ratings and scores, data aggregators produce a synthetic score that is supposed to reflect a representative assessment of the entire market.

Chatterji *et al* (2016) attribute this divergence in evaluation to the lack of consensus on the definition of non-financial ("Common theorization") as well as to the way in which the same concept is measured ("Commensurability"). The authors also note that the conceptual framework adopted depends partly on the location of the agency's head office. For Eccles and Stroehle (2020), this is explained by the social origins of non-financial rating agencies (historical and organisational).

Berg *et al* (2020) confirm that the main reasons for rating divergence lies in the differences between what is measured and what enters into the scope of the rating ("Scope effect"), but especially the way in which the rating is measured ("Measurement effect"). Moreover, the outcome of the evaluation depends in part on the person who attributes the rating ("Rater effect"): a company that is well (or badly) rated in a category (for example, the environment), will have a higher probability of also being well (or badly) rated in all the other areas. Conversely, differences in the choice of weighting ("weight effect') only marginally explain differences in ratings.

Christensen, Serafeim and Sikochi (2019) find that the more non-financial information the company publishes, the greater the divergence between ratings, which indirectly confirms the importance of indicators as explanations for the lack of consensus. This is also more significant for companies with a poor rating.

Kotsantonis and Serafeim (2019) show that, over and above the choice of indicators, other methodological choices, notably concerning the definition of the rating universe and the treatment of data gaps, can have a significant impact on evaluation and thus contribute to variations in ratings. Since ratings are often defined at sectoral level and/or in an orderly manner, the definition of the peer group will in particular be of crucial importance to the rating. Generally speaking, a peer group defined without reference to the sector to which the rated entities belong will, in the context of an environmental assessment for example, penalise companies from sectors that pollute, while improving the comparability of evaluations between companies. Meanwhile, ratings defined by the sector to which they belong will depend on the sectoral benchmark chosen (for example, the Global Industry Classification Standard (GICS) taxonomy developed by MSCI and Standard & Poor's, or BICS, a sector-based classification created by Bloomberg).

Similarly, the methodological choices made when there are data gaps are also likely to influence company ratings. In this respect, there are many possible options. A first option consists in defining more or less complex rules to make up for the lack of data. The simplest rules consist in neutralising the data gap in the score (its weight is reduced to zero) or, conversely, assigning a penalty to the company for which there is a data gap. The first

[16] KLD (MSCI Stats), Sustainalytics, Vigeo-Eiris (Moody's), RobecoSAM (S&P Global), Asset4 (Refinitiv) and MSCI.

approach, which is the approach adopted by MSCI for example, consists in giving the benefit of the doubt to non-reporting companies. It does not penalise companies that lack the human or financial resources (e.g. small companies) to develop reporting in line with the requirements of agencies. However, this approach has the disadvantage of not encouraging rated entities to produce this non-financial information. Conversely, the second option amounts to sanctioning the data gap, but in doing so, it will penalise players that do not have the resources to produce data. Other more complex rules can be envisaged, such as the rule of attributing to a company the average value observed at the sectoral level. In the event of a break in the time series, data providers may also choose to use the value observed during the prior period for the period where the value is missing. A second option consists in estimating the data gap using statistical and econometric models.

In light of these findings, the academic studies unanimously underline the risks that would result from investors' overdependence on the ratings issued by non-financial agencies, whether in determining their investment policies or fulfilling their regulatory obligations. These risks would mainly affect market efficiency, financial stability and the credibility of non-financial rating agencies. This dependence could in particular emerge with investors who do not have sufficient resources to conduct their own analysis (small management companies or retail investors). In this connection, researchers insist on the need for greater transparency from rating agencies on the data and methods that they use rather than a convergence of methodologies.

2.2. A HIGHLY DIVERSIFIED OFFERING FROM DERIVATIVE SERVICES TO DATA

Building on these basic services, providers of ESG data, services and analyses have, over the years, developed a diverse range of product and service offerings, particularly those specifically designed for investors. This is hardly surprising given that non-financial data providers are today still mainly financed by investors. The range of services designed to meet the needs of issuers was sowewhat narrower until recently but is also growing steadily.

2.2.1. Services for investors

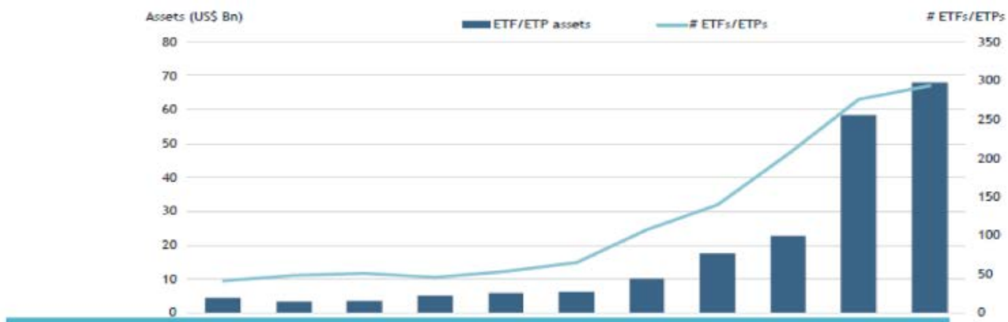
- ☐ **The production of indices that measure the performance of underlying assets against/versus ESG criteria**

Using the scores produced, ESG data providers draw up rankings, as well as generic or "customised" performance indices. Such activities are widespread among the ESG data providers analysed (nearly all are concerned, except for specialised index providers). Index production is often carried out in conjunction with non-specialist index providers or investors. These indices are used by investors to estimate the relative performance of their investments or to build index funds that may or may not be listed (ETFs). This business segment has significant development potential since many institutional investors implement ESG policy through passive management (Bennani *et al* (2018), Grillet-Aubert (2020)).

The increasing use of ESG indices is illustrated by the exponential growth in the number of ESG ETFs and assets under management. Nascent at the beginning of the last decade, in 2020 this market segment is estimated to represent $68 million of assets under management worldwide (Source: ETFGI). However, this size is still limited for the moment if we compare it to the size of the market on the whole (€5,400 billion of assets under management in June 2020 according to EFAMA).[17]

[17] EFAMA International Statistical Release Q2 2020.

Global ESG ETF and ETP asset growth as at end of February 2020



Year	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Feb-20
# ESG ETFs/ETPs	41	48	51	46	53	65	107	140	206	276	293
ESG ETF/ETP Assets (US$Bn)	4	3	3	5	6	6	10	17	22	58	68

Source: ETFGI data sourced from ETF/ETP sponsors, exchanges, regulatory filings, Thomson Reuters/Lipper, Bloomberg, publicly available sources and data generated in-house.Note: This report is based on the most recent data available at the time of publication. Asset and flow data may change slightly as additional data becomes available.

- **Positive or negative screening**

This feature is proposed by virtually all typical ESG data providers and market participants and allows companies to be selected/excluded from a portfolio based on ESG criteria, in order to define an investable universe.

- **Participation in the creation and management of SRI funds**

This type of offer consists in assisting investors and asset managers, sometimes through partnerships, in portfolio construction, portfolio development and, more broadly defining investment strategies. This activity is offered by several data providers in our sample (in particular Ethifinance, Ethos and Covalence). In contrast, Arabesque has the unique feature of marketing SRI funds that are directly based on its own scores (S-Ray score).

- **Portfolio analysis**

Investors use portfolio analysis tools to assess the ESG risks of assets in a portfolio, based on extra-financial ratings, and to identify the best and worst performers by portfolio and/or ESG feature. This offering is often combined with an estimation of the carbon footprint of the funds. These services are offered by nearly all non-specialist ESG data providers and market participants.

- **Normative analysis**

The purpose of this service is to assess to what extent companies comply with international standards and conventions, such as those issued by the International Labour Organisation or the Universal Declaration of Human Rights. This service is provided by nearly all the traditional non-specialist ESG data providers, but is not developed by the other market participants.

- **Controversy tracking**

Controversy tracking enables the monitoring of allegations and disputes affecting companies (and therefore their reputation and legal security) and, indirectly, the people linked to them. Controversies are generally classified according to their frequency of occurrence and level of severity. The answers provided by the companies are also identified. Data related to controversies are updated frequently (weekly or even daily). This service is offered by nearly all traditional non-specialist ESG data providers and market participants.

- **Regulatory reporting assistance**

The effective or future implementation of new regulations has led to the proposal of new offerings to investors, such as, for example, services to ensure compliance with the Disclosure and Benchmark regulations.

- **Engagement monitoring**

Engagement monitoring aims to identify potential themes for shareholder engagement on ESG issues and to assist investors as advisors and facilitators in the implementation of their engagement policy. This offering is proposed by half of the traditional non-specialist ESG data providers

- **Analysis of general meeting resolutions and proxy advisory services**

This offering consists in assisting investors with how ESG issues are considered in their voting policy. This service covers analyses of general meetings, the formulation of voting recommendations, administrative assistance for the exercise of voting rights (management of voting forms), and the exercise of voting rights on behalf of investors. This service is provided by only three of the data service providers reviewed (ISS ESG, Ethos and Inrate, the two latter firms focus on Switzerland for that matter).

- **Business intelligence**

This activity consists in the production of structured knowledge in the form of information intelligence and analysis aimed at facilitating decision-making.

2.3. A SERVICE OFFERING THAT IS MORE SPECIFICALLY AIMED AT DEVELOPING COMPANIES

The services proposed to issuers by data providers cover two types of offerings:

- **Audit and advisory activities**

These services are aimed at identifying the sources of risks and opportunities and in setting up an overall or targeted ESG strategy on one of the components and its applications (road map, reporting, etc.). They are proposed by half of the traditional ESG data providers under review.

- **External evaluation of financing products**

This service consists in the evaluation of products such as green bonds and social bonds in terms of allocation, impact and reporting quality, leading to the production of second opinions, certifications and labels. It is proposed by one third of the traditional ESG data providers analysed.
These services, which are performed at the issuer's request, follow the issuer-payer remuneration model. On this market segment, ESG data providers are increasingly facing competition from accounting and auditing firms that have developed an offering in the ESG segment.

Traditional players: Products and Services

Products/Services	ISS ESG	SUSTAINALYTICS	VIGEO-EIRIS	Covalence	Standard Ethics	INRATE	Ethos*	Ecovadis	Ethifinance	Ideal Ratings	Trucost	SouthPole	CDP*
Nationality	US	NL	FR	SWISS	UK	SWISS	SWISS	FR	FR	US	UK	SWISS	Supra (Germany/UK/US)
EU operations	Yes	Yes	Yes	No	No	No	No	Yes	Yes	Non	Yes	Yes	Yes
Group	DBAG	Morningstar	Moody's						Qivalio		S&P		
Date of creation	1985	2008	2002	2001	2004	1995	1997	2007	2003	2006	2000	2006	2002
Business intelligence	■	■		■									
Rating & Analysis/Score	■	■	■	■	■	■	■	■	■	■			■
Normative analysis			■	■	■	■	■	■	■				
Ranking	■	■	■	■							■	■	■
Databases	■	■	■			■				■	■	■	■
Sectoral/ethical exclusion		■	■			■		■	■	■			
Controversies	■	■	■	■		■		■	■				
Indices		■	■	■	■	■	■			■	■		
Proxy voting	■					■	■						
Engagement	■	■	■				■		■				
Portfolio exposure/risks	■	■	■	■		■	■			■	■	■	
Asset management				■			■	■	■				
Audit	■	■	■					■	■		■	■	
Financing evaluation (GB, etc.)	■	■	■					■	■		■	■	
Specialisation					Italy/*solicited rating*	Switzerland	Switzerland	*solicited rating*	SME/unlisted		Climate	Environment	Environment

Sources: Companies; Rating: *= Foundation/non-profit organisation

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New entrants: Products and Services

	IHS Markit	MSCI ESG Research	L.S.E. (FTSE Russel/Beyond ratings)	Refinitiv	Bloomberg	S&P (Robeco SAM)	CSR Hub*	Arabesque	TruValue Labs	Impak	Owl Analytics	RepRisk
Type of player	*Market*	*Market*	*Market*	*Market*	*Market*	CRA	*Start-up*	*Start-up*	*Start-up*	*Start-up*	*Start-up*	*Tech start-up*
Nationality	UK	US	UK/FR	UK	US	US	US	All	US	CND	US	Swiss
EU operations	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	No	No	No	Yes
Date of creation							2007	2013	2013	2016	2018	2006
Business intelligence				■	■	■	■		■			
Notation&analyse/score		■	■	■	■	■	■	■	■	■	■	■
Normative analysis								■				■
Databases	■	■	■	■	■	■	■	■	■	■	■	■
Sectoral/ethical exclusion				■	■							■
Controversies				■	■	■	■		■		■	■
Indices	■	■	■	■	■	■			■	■		■
Ranking			■	■	■	■	■		■	■	■	■
Proxy voting												
Engagement		■										
Fund: portfolio exposure/risks		■	■	■	■			■	■	■	■	■
Selection of investment universe		■	■	■	■			■	■		■	■
Asset management								■		■		
Advisory, Audit			■			■	■	■				
Listing, Evaluation of financing products (*Green Bonds*, etc.)			■			■						

Sources: Companies

Bibliography

Bennani L., T. Le Guénédal, F. Lepetit, L. Ly, V. Mortier, T. Roncalli, T. Sekine (2018); How ESG Investing has impacted the asset pricing in the equity market; Amundi Discussion Paper 36

Berg, F., J. F. Koelbel, and R. Rigobon (2020): Aggregate Confusion: The Divergence of ESG Ratings., MIT Sloan School Working Paper.

Christensen D., G. Serafeim and A. Sikochi (2019): “Why is corporate virtue in the eye of the beholder? The case of ESG ratings,” Harvard Business School Working Paper.

Chatterji K., R. Durand, D. I. Levine, and S. Touboul (2016) : Do ratings of firms converge? Implications for managers, investors and strategy researchers. Strategic Management Journal, 37(8):1597–1614, 2016.

Dorfleitner G., G. Halbritter, and M. Nguyen (2015) : Measuring the level and risk of corporate responsibility – An empirical comparison of different ESG rating approaches. Journal of Asset Management, 16 (7):450–466, 2015.

Eccles R. G. and J. C. Stroehle (2020): Exploring Social Origins in the Construction of ESG Measures, Working paper.

Grillet-Aubert (2020) : Opportunities and risks in the financial index market, AMF Risks and Trends, June 2020

Kotsantonis S. and G. Serafeim (2019): Four Things No One Will Tell You About ESG Data, Journal of Applied Corporate Finance 31 (2), Spring 2019, pages 50-58.

Semenova N. and L. G. Hassel (2015). On the Validity of Environmental Performance Metrics. Journal of Business Ethics, 132(2):249–258, 2015.

Appendix: List of companies in the sample

1	Arabesque
2	BLOOMBERG
3	CDP
4	Covalence
5	CSR Hub
6	Ecovadis
7	Ethifinance/SpreadResearch
8	Ethos
9	Ideal Rating
10	IHS Markit
11	Impak
12	INRATE/zRating
13	LSEG (FTSE Russel/Beyond ratings)
14	ISS ESG
15	MSCI ESG Research
16	Owl Analytics
17	Refinitiv
18	RepRisk
19	S&P(RobecoSAM)
20	SouthPole
21	Standard Ethics Ltd
22	SUSTAINALYTICS
23	Trucost
24	TruValue Labs
25	VIGEO-EIRIS