UCLouvain

LOUVAIN
School of Management

Louvain School of Management

Understanding the use of sustainability information by the financial world: ESG integration process and its influences

Author : Sam Vandezande
Supervisors : Valérie Swaen & Yves De Rongé
Academic year 2020-2021

I would like to express my gratitude to all the people who made this thesis possible. First, my thesis supervisors Valérie Swaen and Yves De Rongé who provided me continuous guidance and valuable feedbacks.
Then, I would like to thank the respondents who kindly accepted to take the time to answer my questions. This research would not have been feasible without you.
Finally, I cannot express enough thanks to my girlfriend, family and friends for their unconditional love and support.

Table des matières

1. *Introduction* **1**

2. *Sustainability reporting* **2**

2.1. Origins of Sustainability reporting **2**

2.2. Definition of sustainability reports **3**

2.3. Types of sustainability reports **3**

2.4. The current state of sustainability reporting **5**

2.5. Reasons to report **7**

2.6. Challenges of sustainability reporting **9**

2.7. Remedies to sustainability reporting challenges **10**

2.7.1. Private initiatives 10

2.7.2. European initiatives 12

3. The financial world's interest in sustainability information **15**

3.1. The rationale to gather sustainability information **15**

3.2. Integration of sustainability information in investment decisions **20**

3.3. Barriers to sustainable information integration **26**

3.4. The current state of ESG integration in investment decisions **28**

3.4.1. Overview of the use of ESG information 28

3.4.2. Content preferences 29

3.4.3. Format preferences 30

3.5. Disconnection between the supply and the demand of sustainability information **33**

3.6. Proposed model of ESG integration by professional investors and its influences **35**

4. Qualitative research: Understanding the use of sustainability reporting within the financial world **38**

4.1. The problem and the research questions **38**

4.2. Methodology **39**

4.2.1. The motivations for a qualitative approach 39

4.2.2. Choice of sample 39

4.2.3. Method of collecting the information 40

4.2.4. Method to analyze information 41

5. Analysis of the results **41**

5.1. The motivations to consider ESG information **41**

5.2. The use of ESG information in the investment processes **48**

5.3. Content and Format of the ESG information used by investors **59**

5.4. Factors influencing the use of ESG information **70**

6. Conclusion & limits **78**

Bibliography **81**

Appendices **95**

1. Introduction

With the creation of the sustainable development goals in 2015, the world has set a global agenda for sustainability. Yet, in order to achieve those promising goals and solve the environmental and social challenges, actions should come from all the actors across our society. There is no doubt that companies have a key role to play in this transition (van Tulder, 2018). To redirect the European economy towards a green economy, the European Union has released in 2019 the "green deal" that provides a transition roadmap for companies (European Commission, 2019).

Financial institutions have a key role to play in this transition. Through their capital allocation, investors have the potential to shape societies by investing in new opportunities and divesting sectors that do not match some sustainability standards. The European Union has evaluated the needed sustainable investment to reach the 2030 climate targets to €260 billion (EU Technical Expert Group on Sustainable Finance, 2020). The implication of financial institutions in the transition is thus essential for the European Union. In addition to regulations from the European Union, pressure from clients as well as evidence of superior returns are nudging asset management firms toward more Socially Responsible Investment (SRI) practices.

Although the conceptions of socially responsible investment are heterogenous, it can be described as the integration of information about sustainability, called ESG information (i.e. the combination of information on Environmental, Social and Governance matters), in investment decisions (Sandberg et al., 2009). Moreover, ESG data is highly idiosyncratic and therefore increases investors' need for company specific information. Such information is often disclosed in so called sustainability reports of companies.

Nevertheless, the integration process of ESG information remains unclear, particularly for companies who want to signal their ESG performance to investors but don't understand their informational needs. As a consequence, a wide variety of reporting practices and European initiatives have sprung in an attempt to clarify and simplify the communication between companies and investors for a better transparency on ESG topics. Yet, many financial market players remain unsatisfied with the information included in those reports, leading to a gap between the published and the desired information.

The purpose of this thesis is thus to bridge this gap by depicting the current reporting landscape and by better understanding professional investors' needs in terms of ESG information. The fundamental question driving this research is therefore: *"**How is ESG information integrated by professional investors in their investment decisions?**"*. Approaching this question will require to look at subsequent questions such as: *Why do professional investors need this information? What factors influence the integration of this information in professionals' decisions (e.g., does the Covid-19 pandemic influence professionals' considerations for ESG? How does the European Taxonomy influence the perspective of financial players on sustainable investment?)? What information is needed by professional investors to assess sustainability practices of companies? What format should this information take? And what information gap exists between companies' sustainability reports and investors' needs?*

This thesis has the following structure: in the first two parts, I review relevant literature linked to the two main themes of this thesis. I first offer a deep dive into current sustainability reporting practices of companies and their rationale to report. I then focus on the use of sustainability information by financial market players. Finally, I extend this literature with a qualitative research based on interviews with professional investors in order to better understand their ESG integration practices.

2. Sustainability reporting

2.1. Origins of Sustainability reporting

Nowadays, two types of company reporting coexist: financial reporting and sustainability reporting. Although financial reporting is mandatory for all publicly traded companies, sustainability reporting is only mandatory for large companies in some regions and remains mostly a voluntary initiative. Created in reaction to the 1929 crisis, standardized financial reporting was the first type of reports to appear on financial markets (Bryer, 1993). At that time, regulations and the development of financial markets had led to the rise of passive investor ownership (i.e., investors who own the company but do not control it). This situation, where investors are less informed about the internal functioning of the company, resulted in the crisis and forced governments to require mandatory reporting of financial information in order to facilitate investors' access to information (Bryer, 1993). Since then, financial reporting has been refined by many consecutive regulations to become the preferred source of analysis of professional investors, mostly due to its mandatory nature and its standardized format that ease comparison of quantitative and objective data (White, 2005).

On the other hand, sustainability reporting has been largely left behind during decades. Yet, it gained traction in the end of the 20th century due to environmental, social or governance scandals such as oil spills, child labor or the Enron bankruptcy (White, 2005). It started in the 70's with some disclosure of social matter in line with the increasing focus on ethics and human rights at the time (Herzig & Schaltegger, 2006). But it lost momentum in the 80's since it was not institutionalized (Kolk, 2005). In the late 80's, sustainability reporting re-emerged with, at first, a focus on environmental matter. Since then, it has gained traction and eventually became mainstream among the largest companies (Kolk, 2005).

In parallel, the growing social and environmental concerns resulted in various international initiatives such as the United Nations Global Compact who was created in 2000 in order to "align companies' strategies on universal principal on human rights, environment, labor and anti-corruption" (UNGC, n.d.). More recently, the sustainable development goals elaborated during the Paris agreements of 2015 have set the worldwide sustainability agenda (United Nations, 2015). These 17 goals describe common societal goals to be reached by 2030 for governments, companies and individuals around the globe in the social, environmental and economic realms. As a consequence, companies who want to align with this agenda are voluntarily reporting their activities accordingly to show their contributions to the goals.

2.2. Definition of sustainability reports

Sustainability reports has been defined as "Public reports by companies to provide internal and external stakeholders with a picture of corporate position and activities on economic, environmental and social dimensions. In short, such reports attempt to describe the company's contribution toward sustainable development" (World Business Council for Sustainable Development, 2002, p. 8). Today, sustainability reports fall under various names such as environmental, social and governance (ESG), sustainable development or corporate social responsibility (CSR) reports (Junior et al., 2014).

2.3. Types of sustainability reports

Sustainability reports fall under three types: stand-alone, combined or integrated (Gnanaweera et al., 2018; Searcy & Buslovich, 2014).

Stand-alone reports consist of the publication of a separate sustainability report from the mandatory financial report. Then, in **combined reports**, the sustainability report is inserted within the financial report, but the content is separated in financial and sustainability sections

within the report (Searcy & Buslovich, 2014). Finally, **integrated reports** aim at reporting any information about the value creation process of a company and therefore combine financial and sustainability information within a single report. Integrated reports are defined as "a concise communication about how an organization's strategy, governance, performance and prospects, in the context of its external environment, lead to the creation of value in the short, medium and long term." (IIRC, 2021, p.10).

Types of sustainability reports	Stand-alone	Combined	Integrated
Characteristic	Publication of separate report from financial report.	Publication of one report combining financial and sustainability information in separate sections.	Publication of one report where the information is integrated, in order to provide a holistic view of the company.
Timing	Different than financial report	Same as financial report	Same as financial report
Guidelines	Multiple frameworks exist		International integrated reporting council guidelines

Figure 1: Table comparing the types of sustainability reports

One particularity of sustainability reports is that limited standards exist regarding the content and the audience of the report. As a result, sustainability reports are often targeted at a broad range of stakeholders, which means that companies must cope with a multitude of requests (Kolk, 2008). Furthermore, the format of sustainability reports is important for companies as the content and the audience of the reports influence the goals that managers prioritize (Johnson, 2019). For instance, if the report is aimed at capital providers, managers will perceive that financial goals prevails over CSR goals, regardless of the reporting format. When reporting to a diverse audience, managers will try to maximize the probability of reward, that is, reporting the information that is the most rewarded by the audience (Johnson, 2019). Therefore, managers will tend to allocate more capital to CSR goals when reporting to various stakeholders about CSR compared to reporting solely for investors. This focus on CSR goals is stronger when the information is disclosed in a separate report rather than as part of the financial report. Indeed, the disclosure in an external report increases the salience of the information and thus managers'

accountability of the disclosed sustainability performance (Johnson, 2019). Similarly, critics have argued that integrated reports are aimed at depicting value for investors rather than value for society and that it did not require to disclose potential harm inflicted outside of the firm if it does not impact the firm (Flower, 2015). Integrated reports are thus decreasing the salience of sustainability information. Moreover, the framework is considered by some to be too lose, leaving too much discretion to the firms' managers (Flower, 2015).

Another important feature of sustainability reports is the use of **external assurance**, even though no regulation requires them to do so. External assurance is the assessment of the report's content and methodology by a third party in order to increase the relevance and the credibility of the report (Simnett et al., 2009). The two main assurance standards are ISAE3000 and AA1000AS (Kolk, 2008). Under those standards, assurance can have different forms of engagement: either limited (moderate/negative) or reasonable (high/positive) that provide two different levels of guarantee to the reader (Hodge et al., 2009; Mock et al., 2007). Then, assurance can be provided by professional accountants, big accounting firms or sustainability experts. The type of assurer can impact the assurance since they have different methodologies (Junior et al., 2014). For instance, the credibility of the report increases when the assurance is reasonable/high and when the assurer is a top tier accountancy firm (Hodge et al., 2009).

Regarding the reporting quality, it increases with firm's size and depends on the nature of the firm's activities (Brammer & Pavelin, 2008). For instance, sectors with high environmental concerns have better quality of disclosure (Brammer & Pavelin, 2008). Overall, the quality of the sustainability report improves with reporting experience (learning effect), gender diversity in the company board and assurance of the non-financial information (Gerwanski et al., 2019). The researchers also reported that integrated reports are often classified as not very readable but the quality of the report is not impacted by the readability of it (Gerwanski et al., 2019).

2.4. The current state of sustainability reporting

Regarding the adoption of sustainability reporting among companies, 12% of the 250 largest companies reported in 1993 and this share has climbed to over 90% today (KPMG, 2020). More precisely, 96% of the 250 world's biggest companies published sustainability reports and 77% of the European companies reported (KPMG, 2020). Regarding the publication of such reports, the survey has demonstrated that the industries that were publishing the most were sectors with

high environmental or social impact but also technology companies. The lagging sectors are retail, transport and leisure.

Regarding the types of reports used, KPMG (2020) demonstrated a change in sustainability disclosure throughout the years with an increase of CSR information included directly in the annual financial reports (combined or integrated reports), representing 78% of the published reports. This combination of reports shows the relevance of such information for investors (KPMG, 2020). Yet, the complete integration of financial and non-financial information under one integrated report is used by only 22% of the world's biggest 250 companies (KPMG, 2020).

Then, the use of third-party assurance has gone mainstream to guarantee the credibility of the information provided. In 2020, 71% of the 250 biggest companies and the majority (51%) of the 100 biggest companies of 52 countries used third party insurance (KPMG, 2020). Furthermore, since sustainability reporting is not yet standardized by any regulation, there is a large need for external auditing to guarantee the quality of the information (Tamimi & Sebastianelli, 2017). Also, the use of external assurance varies according to the orientation of the company (stakeholders-orientation increases the use of assurance compared to shareholders-oriented companies due to the increased importance of the sustainability information when targeted to stakeholders), the type of industry, the investor protection (weaker protection leads to an increased use) and the degree of credibility of the company (lower credibility leads to an increased use of assurance) (Maroun, 2020).

Regarding the content of the reports, another study has demonstrated that among S&P500 companies, governance information was the most reported topic while environmental information was the least reported (Tamimi & Sebastianelli, 2017). Finally, they also pointed out some incoherence in reporting practices. Indeed, while 97% of companies have business ethics policies, 62% did not reported having any policies against child labor (Tamimi & Sebastianelli, 2017). Similarly, KPMG (2020) points out gaps in the sustainability reports, where impact on biodiversity is largely absent. For instance, only 22% of the top 100 companies in Europe report their impact on biodiversity. Yet, KPMG argue that climate-related disclosure is going mainstream (56% of the reports acknowledge the climate risk while 76% have carbon reduction targets) as a result of the ubiquity of this topic in the society and its increasing relevance for financial performance (KPMG, 2020).

Regarding the alignment of reporting with the global sustainability agenda, 72% of the reports for the 250 biggest companies make a link with the sustainable development goals which represents a 30% increase since 2017. Nevertheless, the reporting is mostly done for positive impact (90% of the reports) and only half disclose their performance against those goals (KPMG, 2020). Similarly, a survey of Pricewaterhouse Cooper (2019) on SDGs reporting demonstrated that among more than a thousand companies, 72% mentioned the SDGs in their sustainability reports. However, only a third (34%) of the companies discussed those goals in their strategies and 21% showed a commitment from the top positions for those goals. Moreover, only 1% reported quantitative metrics to track their progress (PwC, 2019).

2.5. Reasons to report

As we have seen, sustainability reporting is gaining traction but what are the motives for companies to report? Bhimani, Silvola and Sivabalan (2016) argue that the adoption process of reporting is the same than any other innovation as there are early and late adopters of sustainability reporting. They thus studied the motivations of companies based on their position in the adoption movement. The advanced motivations are coercive (the reporting is done in response to the pressure from external stakeholders), normative (the norm of reporting is internally pushed by employees or stakeholders (e.g. consultants) who consider it as the norm) and mimetic (the reporting is done by copying the practices of other companies) (Bhimani et al., 2016). Lastly, another branch of literature considers a fourth explanation for sustainability reporting: companies report to signal future performance to investors (Lys et al., 2015). Nevertheless, the majority of the reporting is done in reaction to pressures from stakeholders rather than proactively (Tamimi & Sebastianelli, 2017).

First, **coercive motive** is the result of companies' linkage with their stakeholders. Indeed, with the rise of the stakeholders theory of the firm, the classical view of the company existing by itself for its shareholders shifted to the view of the company part of a broader network that creates value to its stakeholders at large (Freeman & Reed, 1983). This shift started in some companies and became mainstream in Europe with the creation of the European Corporate Sustainability Framework (ECSF) in 2001 that included CSR and stakeholder-driven approach in the framework of business excellence of the European Foundation for Quality management (Marrewijk et al., 2004). But also more recently when the 200 largest U.S. companies declared in 2019 that they committed to create value not for just shareholders but for all stakeholders equally (Business Roundtable, 2019).

This paradigm shift changed the relationship between companies and their environment. For instance, trust has become a very valuable asset of a company and transparency, one of its main drivers, is increasingly demanded by stakeholders, which results in coercive pressure (White, 2005). More particularly, financial markets and employees are considered as the most demanding stakeholders (Fernandez-Feijoo et al., 2014; KPMG, 2020; World Business Council for Sustainable Development, 2002). Peer-pressure of other companies is also a driver for disclosure (World Business Council for Sustainable Development, 2002). Furthermore, this demand is stronger in stakeholders-oriented countries, that is, countries that are more collectivistic and thus more prone to consider the various stakeholders (Dhaliwal et al., 2014). Therefore, responding to those multiple demands from stakeholders to adopt sustainable practices allows companies to create trust, reputation, brand value, legitimacy and accountability for their activities (Herzig & Schaltegger, 2006).

Secondly, Bhimani, Silvola and Sivabalan (2016) suggest that companies report because they translate socially **desirable norms** (e.g. sustainability) into technical attributes (e.g. sustainability reports). Thus, companies report because it is socially responsible to do so (Gelb & Strawser, 2001). Gelb and Strawser (2001) argue that reporting sustainability information is a transparency requirement for companies as part of their corporate social responsibilities. Consequently, they showed that higher corporate social responsibility performance is correlated with higher level of disclosure (Gelb & Strawser, 2001).

Thirdly, based on the adoption curve of innovators, Bhimani, Silvola and Sivabalan (2016) find that **mimicry** is the main motivation for late reporters. Mimicry means that companies replicate the practices introduced by competitors in order to benefit from the knowledge of previous implementations. Therefore, reduced cost is the main argument of the late reporters. Then, adhering to the practice allows companies to compare and benchmark with competitors (Herzig & Schaltegger, 2006). Yet, late reporters appear to be less sincere and therefore less credible than early reporters (Bhimani et al., 2016).

Finally, it has been demonstrated that some companies who engage into sustainability initiatives and reporting do so to **signal future financial performance** to investors (Lys et al., 2015). The researchers demonstrated that sustainability investment does not always necessarily result in positive returns. They thus suggested that companies do not always engage in

sustainable practices to only increase financial performance. Rather, such initiative could suggest that companies engage in sustainable practices and report them to signal future financial performance. Accordingly, sustainability reporting intends to decrease information asymmetry between companies and investors, therefore reducing the risk for investors (Jain et al., 2016).

Regarding the moderating factors that influence reporting, a meta-study identified firm size, media visibility and ownership structure as the most dominant reporting drivers of reporting (Dienes et al., 2016).

2.6. Challenges of sustainability reporting

Sustainability reporting faces various challenges: the lack of standardization of the reporting, the difficulty to gather consistent data and select appropriate indicators, the perceived cost compared to the perceived benefits, the heterogenous demands from stakeholders that need specific information (resulting in diffuse and excessive reports) as well as the lack of information on stakeholders' preferences (Herzig & Schaltegger, 2006; Kolk, 2005, 2008; World Business Council for Sustainable Development, 2002).

The beginning of voluntary non-financial reporting has known failures, such as reporting misleading information (Ballou et al., 2006). For instance, some cases of fraudulent non-financial reporting happened in the 70's in Oil and Gas companies, leading to the "1978 system", a regulation that contained principles of standardization for disclosing information of proved reserves of oil (Ballou et al., 2006). As this case illustrates, lack of regulations and standardization of the information might result in vague and diverging practices. Also, the various possible reporting audiences create complexity for reporters who face conflicting demands (Beck et al., 2017). For instance, local communities might be concerned about the impact on the local environment while employees might be concerned by the job security and gender equality. Hence, each stakeholder has different information needs that should be considered and balanced (Beck et al., 2017). Although it can create financial benefits for the company to limit the reporting for one type of stakeholders, leaving other stakeholders unsatisfied about the information disclosed might result in long-term costs.

Therefore, the rise of non-financial reporting brought the need for standardized and credible information, similar to financial reporting, that could be supported by commonly accepted framework and external auditors in order to assess the real impact of the companies.

2.7. Remedies to sustainability reporting challenges

In response to these challenges, many initiatives have sprung to design a standard framework for companies to report their practices in terms of environmental, social and governance (ESG). Those initiatives are private and public.

2.7.1. Private initiatives

Regarding private initiatives, the dominant standards are global reporting initiative (GRI), carbon disclosure project (CDP), Integrated reporting (IR), the guidelines from the task force on climate-related financial disclosure (TCFD) and Sustainability Accounting Standards Board (SASB) (D'Aquila, 2018). Those five frameworks are compared in Figure 2.

First, the **Global Reporting Initiative** offers a standardized framework for companies to disclose their ESG performance to a broad range of stakeholders (GRI, n.d.). The framework is currently the most used among reporting companies (73% of the reports) (KPMG, 2020). Then, the **Carbon Disclosure Project** also provides a specific framework to report on environmental impact such as land, water and climate change (CDP, n.d.). Thirdly, the international integrated reporting council created the **integrated reporting** framework that aims to depict the various value creation levers of a company by integrating financial and non-financial information (IIRC, 2021). The IR framework is made to depict value for investors and capital markets (IIRC, 2021), but this positioning provoked criticisms that the IIRC favored sustainability impact on the firms rather than on society (Flower, 2015). Moreover, the **Taskforce for Climate-related Financial Disclosure** was created in 2015 as an initiative from various financial industry members such as banks, pension funds or insurance companies in search for clearer information around climate change impact and risk of companies (TCFD, n.d.). Hence, the TCFD recommendations are also aimed at a financial audience. Today, 60% of the 100 largest public companies report in accordance with the TCFD guidelines for climate disclosure, with an improvement in every reporting dimensions (TCFD, 2020). Fifth, the **SASB** aims at reporting ESG information that are likely to impact financial performance in the industry in which the company operates to investors (SASB, n.d.).

Finally, industry specific reporting frameworks are also used. Some firms have also developed their own framework internally. Each of these reporting methods differ on their targeted audience and their scope, resulting in a broad range of competing frameworks for firms.

	GRI	IR	CDP	TCFD	SASB
Scope of the content	ESG	Financial + ESG information	Environmental information	Climate-related information	ESG
Materiality	The report shall cover topics that reflect the reporting organization's significant economic, environmental, and social impacts; or substantively influence the assessments and decisions of stakeholders (GRI, n.d.)	Information about matters that substantively affect the organization's ability to create value over the short, medium and long term (IR, 2021).	Financial impact of climate, water and forest related risks (CDP, n.d.).	The disclosure of climate related risk and opportunities that provide investors, lenders, assurance underwriters and other stakeholders with metrics and information needed to assess the impact of climate change on companies current and future financial positions (TCFD, n.d.).	The issues that are reasonably likely to impact the financial condition or operating performance of a company and therefore are most important to investors (SASB, n.d.).
Audience	Broad range of stakeholders	Mainly capital owners	Mainly capital owners	Capital owners	Capital owners

Figure 2: Table comparing the reporting standards

D'Aquila (2018) regrets this co-existence of multiple frameworks that have different approaches, target audiences, terminologies and measures that hinder the comparability between companies. Moreover, she pointed out the fact that sustainability reports have mainly a marketing purpose and are oriented to a too broad set of stakeholders, resulting in a vague definition of materiality. Materiality is described in accounting as the information that is relevant in a specific context, which implies some judgment (Bernstein, 1967). Thus, materiality identifies the border of what is important or not and it is specific to each company, although similarities exist within industries. Hence, a vague definition of a company's materiality blurs the real risks and impacts of the company.

To solve these issues, a roundtable initiated by the major framework providers (GRI, IR, CDP, CDSB and SASB) has launched the better alignment project in order to align their framework around climate disclosure and clarify the commonalities between the frameworks (Corporate Reporting Dialogue, 2019). This project constitutes a first step toward the simplification of the reporting process. Nevertheless, the Corporate Reporting Dialogue (2019) argues that each framework's scope and report audience justify the multiplicity of the standards.

As part of this simplification of the reporting landscape, SASB and IIRC (2020) recently announced the merger of their institutions and reporting frameworks into the Value Reporting Foundation. This merger goes one step further in the consolidation and standardization of the reporting frameworks.

Moreover, the World Economic Forum (2020) prepared, in collaboration with Deloitte, EY, KPMG and PwC, a white paper suggesting 21 ESG core metrics and 34 expanded metrics that should be disclosed by companies, regardless of their industry. Those metrics therefore constitute a first basis for companies who want to disclose their ESG performance but should be complemented with key metrics that are material for the company and its industry.

2.7.2. European initiatives

In an attempt to standardize sustainability reporting practices, the European commission adopted in 2014 the EU Non-financial Reporting Directive ("NFR Directive") 2014/95/EU , a non-financial reporting regulation which requires non-financial reporting for European public-interest companies with more than 500 employees (European Parliament, 2014). This directive took effect in 2018 to assess companies on environmental and social matters based on existing

guidelines such as OECD guidelines and the United Nation Global Compact in order to achieve the targets set during the Paris agreement. The directive requires the companies to provide at least the minimum information about the business model, the policies implemented regarding environmental and social matters, the outcome of those policies as well as the risks and performance associated.

Although this directive is a first step toward the standardization of sustainability reporting, a study suggests that the directive does not sufficiently detail the requirements of the reporting (Alliance for corporate transparency, 2018). The analysis looked at whether or not the information reported was sufficient to evaluate the impact and assess the sustainability strategy of the company. Evidence showed that the information is insufficient in 50% of the cases in terms for environmental disclosures (Alliance for corporate transparency, 2018). Although some topics such as pollution, water use and waste were commonly reported, pollution from transportation, water scarcity risk and biodiversity risk and impact were often omitted. Also, only 2% of the companies reported below 2°C scenario and actions (Alliance for corporate transparency, 2018).

Regarding social and anti-corruption disclosures, less than 40% of the information reported is sufficient for investors to assess the risks, targets and understand the concrete issues (Alliance for corporate transparency, 2018). Social information mainly focuses on direct workers, but it lacks details and does not disclose information about outsourced workers. Similarly, although more than 90% of companies expressed their commitment to respect human rights, they did not disclose enough information about their practices that embody their commitment (Alliance for corporate transparency, 2018). Moreover, companies do not disclose information about the operational implications of their policies. Then, the lack of details regarding the expected information leads to divergent disclosures that do not provide the opportunity to compare companies (Alliance for corporate transparency, 2018). As a result, the general information provided does not allow investors to understand the impact of the issues and the company's performance with regards to these issues (Alliance for corporate transparency, 2018). Therefore, the study concludes that the directive failed to achieve its goal of revealing the real environmental and social exposure of companies to investors. Based on this study, the Alliance for corporate transparency (2018) suggested the creation of clearer requirements and the development of a legislation that clarifies the information to be disclosed in a standardized and industry-specific manner.

In March 2018, the EU Commission launched an action plan on financing sustainable growth which defines the strategy of the European Union to finance a sustainable growth and achieve the goals of the Paris Agreement. This action plan responded to the criticisms on sustainability reporting by planning to develop a common framework to finance a sustainable growth (EU expert group on sustainable finance, 2019). In 2019, the task force on climate-related financial disclosure published a report defining further guidelines for climate change related disclosure. Those guidelines intended to raise awareness among banks and insurance companies about climate change-related risks as well as to complete the NFR directive by requiring information about Governance, Strategy, Risk management, Metrics and targets related to climate change (EU expert group on sustainable finance, 2019). These guidelines have been positively viewed by investors as the majority of them believe that it will help them to limit the global warming (Global sustainable investment alliance, 2019b). Moreover, 34% of investors mention integrating these recommendations in their investment decisions (Global sustainable investment alliance, 2019b). Nevertheless, this regulation focuses only on climate-related disclosure but does not cover other important issues such as social issues, therefore leaving a gap in the guidelines of the European union.

More recently, the need to complete the EU Non-financial Reporting Directive and create a common framework has been fulfilled by the creation of the European Taxonomy. The EU Taxonomy is defined as "a tool to help plan and report the transition to an economy that is consistent with the EU's environmental objectives. The Taxonomy disclosure obligations encourage the reporting of progress towards meeting the screening criteria as well as reporting on their achievement." (EU Technical Expert Group on Sustainable Finance, 2020, p. 8). Hence, the EU taxonomy precisely defines what activities and companies are sustainable (EU Technical Expert Group on Sustainable Finance, 2020). One particularity of this framework is that it is tailored to the materiality of each industry (EU Technical Expert Group on Sustainable Finance, 2019). The aim of such framework is also to specify which investment is sustainable for the financial sector. Hence, financial players will need to align with the Taxonomy in order to claim that their portfolio is sustainable (EU Technical Expert Group on Sustainable Finance, 2020). Finally, while the taxonomy is focused on environmental objectives, it also refers to international guidelines for human rights (e.g. United nation global compact or the OECD guidelines) as minimum thresholds for companies and investors (EU Technical Expert Group on Sustainable Finance, 2020). Nevertheless, a social taxonomy might complement the existing taxonomy in the future (EU Technical Expert Group on Sustainable Finance, 2020).

Regarding the adoption of the taxonomy, companies falling under the NFR directive cited above and financial markets participants will be required to disclose the percentage of their activities aligned with the taxonomy, starting in 2022 for climate mitigation and adaptation objectives and starting in 2023 for the remaining environmental objectives (sustainable protection of water and marine resources, transition to a circular economy, pollution prevention and control and protection and restoration of biodiversity and ecosystems) (EU Technical Expert Group on Sustainable Finance, 2020).

3. The financial world's interest in sustainability information

3.1. The rationale to gather sustainability information

Sustainable investment has gained traction in the financial world. In 2018 in Europe, sustainable assets rose up to €12.3 trillions with a 11% increase in two years, which represents nearly half of the total assets under management (Global sustainable investment alliance, 2019a). Another study reported a five-fold increase of sustainable investments between 2013 and 2017 while three out of four investors mention that sustainable investment has become important (Eurosif, 2018). As we can see, sustainable investment is becoming popular, but why do investors need this type of information?

The most cited reasons for investors to integrate sustainability information are demand from stakeholders & product strategy, financial materiality and alignment with guidelines and future regulation (Amel-Zadeh & Serafeim, 2018; Eurosif, 2018; Global sustainable investment alliance, 2019a; PwC, 2016a; State Street Global Advisor, 2017; Zaccone & Pedrini, 2020).

First, **client demand** is an important driver of ESG integration for investors. Indeed, their clients want their money to be used according to their ethical and environmental considerations (Amel-Zadeh & Serafeim, 2018; State Street Global Advisor, 2017). In order to satisfy such clients and attract new ones, investors consider ESG in their investments or offer new products such as thematic funds.

Secondly, **financial materiality** is one of the most cited reasons for integrating sustainability information in investment decision making (Eurosif, 2018). Financial materiality is a firm-specific concept that is defined as "All information about matters that substantively affect the organization's ability to create value over the short, medium, and long-term."(Eccles & Krzus,

2014; IIRC, 2013, p. 5). Financial materiality is often defined by companies themselves and this process involves judgments, meaning that an objective perception of the financial materiality of a company does not exist (Eccles & Krzus, 2014). Financial materiality is expected to gain further traction due to the current ESG momentum. As an example, large financial institutions with trillions under management bear the risk of the global economy and are therefore considered "too big to let the planet fail" (Eccles & Klimenko, 2019). Although investors first saw sustainable initiatives as agency costs, the large adoption of the stakeholder perspective resulted in a positive opinion of professional investors on sustainable activities (Ioannou & Serafeim, 2015). For instance, companies' valuation has been based for a long time on their physical assets, but today's companies' values and revenues lie in much more intangibles such as reputation than their own physical assets. In fact, intangibles represented 84% of S&P500 companies' valuation in 2019 (AON, 2019). Typical financial reporting therefore fails to provide enough information on its own to accurately predict companies' value.

Moreover, financial information is backward looking while non-financial information is a better assessor of future performance (Grunert et al., 2002). Consequently, the use of sustainability reports has been identified as value relevant (Kaspereit & Lopatta, 2016; Kotsantonis et al., 2016; Moneva & Cuellar, 2009) because it helps investor to formulate more accurate forecasts (Moneva & Cuellar, 2009), particularly when the information is disclosed in an integrated report compared to stand alone reports (Zhou et al., 2017). Those results hold more strongly in stakeholders-oriented countries, suggesting that an international sustainability disclosure standard is not necessarily appropriate due to variations in financial culture (Dhaliwal et al., 2012).

In finance, returns are positively correlated with the risks which suggest that investors aim at maximizing their return while minimizing their risks, a notion described as risk-adjusted return. Literature has identified four value drivers to quantify a stock potential, namely revenue growth, margin development, invested capital needed and risk which is represented by the discount factor (Schramade, 2016). It is thus no surprise that as investors mention using sustainability reports to better asses those financial drivers and generate an alpha (i.e., a financial outperformance of the market) since the inclusion of this information improves their risk-adjusted return by either increasing their returns, decreasing their risks or both (PwC, 2016b). In fact, risk reduction has been mentioned by 65% of professional investors as reason to integrate ESG data in their investment decisions and as a mean to identify investment

opportunities by the remaining 35% (CFA institute, 2017). This motive is supported by a meta-study who demonstrated that 88% of the studies on the link between sustainability and financial performance showed positive correlations (Clark et al., 2015). Moreover, researchers have shown that the inclusion of ESG criteria into investment does not imply any trade-off with performance (Utz et al., 2015) and it decreases return volatility (De & Clayman, 2015). More recently, researchers have confirmed that portfolios integrating ESG dimensions have better risk-adjusted performance than normal portfolios (Consolandi et al., 2020). Those results hold with Eurostoxx50 companies where material ESG data increases returns but those returns do not always materialize in the short-term (La Torre et al., 2020). These results suggest that ESG has reached a tipping-point where it can generate an alpha (Erhardt, 2020).

According to a recent meta-study, ESG practices of the companies result in: reputation enhancement, stakeholder reciprocation (e.g., community benefits), reduced firm's risk (e.g., waste reduction or pollution prevention) and improved innovation capacity (Vishwanathan et al., 2020). And those practices impact financial value drivers in five ways: they increase top line growth, they reduce costs thanks to better use of resources, they minimize risks of regulatory intervention (it is estimated that one third of profits are at risk of regulatory intervention), they increase productivity and they optimize investments (Henisz et al., 2019).

Regarding the **returns**, some investors consider that sustainability performance will bring higher growth in the future. Indeed, they consider ESG as a driver of future financial performance and therefore invest accordingly. For instance, sustainability innovations can optimize the use of resources or create new markets, who in turn improve revenues (Kotsantonis et al., 2016).

Regarding the assessment of financial **risk**, more sustainability disclosure helps to better assess the idiosyncratic risk of companies (Lee & Faff, 2009). In fact, ESG is now considered as a risk premium by the literature, suggesting that ESG provides higher risk-adjusted returns when considered and therefore creates an alpha (Pollard et al., 2018), especially in the long-term (Bender et al., 2018). For instance, environmental, social and governance risks are among the top five most important financial risks for a portfolio according to investors (Krueger et al., 2020). A better ESG risk assessment by investors has three consequences: higher stock prices, lower price crash risk and lower cost of capital for companies.

First, companies that disclose non-mandatory information have higher stock prices (Patel & Dallas, 2003). A study in the bank sector also suggests that the reduction of information asymmetries in terms of sustainability leads to increased stock prices (Carnevale & Mazzuca, 2014). A meta-study concluded that 80% of the studies showed a positive relationship between good ESG practices and stock prices (Clark et al., 2015).

Then, price crash risk of a stock is negatively correlated with sustainability performance (Kim et al., 2014) and sustainability report publication (Jain et al., 2016). Another evidence of the lower crash price risk is the negative correlation between ESG scores and short-selling (i.e. bets on a future decrease in stock price) (Jain et al., 2016). Hence, the publication of material ESG information increases the stock price informativeness, that is, the share of firm-specific information that is taken into account in the stock price, which decreases the price co-movement with industry-peers (Schiehll & Kolahgar, 2020). This result therefore signals that material ESG information is important for investors (Schiehll & Kolahgar, 2020). Moreover, the relationship between material ESG disclosure and stock price informativeness is stronger when the firm has a high exposure to sustainability issues, when the firm has a poor ESG performance, when ownership is composed of institutional investors, when analysts have less firm-specific experience and when investors have lower portfolio complexity (Grewal et al., 2020).

Thirdly, ESG disclosure (Grunert et al., 2002) and improved sustainability performance (El Ghoul et al., 2011; Goss & Roberts, 2011), decrease companies' cost of capital (Dhaliwal et al., 2011). The decrease in cost of capital also holds when the information is disclosed in integrated reports and is stronger when the quality of the report increases (Zhou et al., 2017). Reporting sustainability information can therefore increase investment capabilities of companies, particularly for highly capital-constrained firms (Cheng et al., 2014). Moreover, it has been shown that firms with high cost of capital and low level of liquidity are more likely to publish sustainability report before raising capital in order to decrease this cost (Dhaliwal et al., 2014). Those results demonstrate that sustainability disclosure can act as substitute of financial information in evaluating the cost of capital of a company (Dhaliwal et al., 2014).

Financial materiality of ESG information is also reflected by the consideration of ESG ratings by investors. Indeed, ESG ratings created by rating agencies have been identified as value relevant (De & Clayman, 2015). These ratings aim at summarizing the disclosed raw ESG data of companies into key metrics that professional investors can use to assess the ESG

performance of a company without performing a deep ESG analysis themselves. Financial materiality is also important for ESG ratings, as highlighted by the study of Khan et al. (2016), who found that firms with good ratings in material ESG issues outperform other firms. However, these results do not hold when firms have good ratings in non-material ESG issues. Similarly, changes in ESG ratings have an impact on equity performance (De & Clayman, 2015) and this impact is stronger in industries were ESG issues are the most material (Consolandi et al., 2020). Indeed, performance in key material ESG indicators increases the weighting of ESG information and investors' willingness to invest in the company (Cheng et al., 2015). Hence, ESG information should be focusing on the most material issues as disclosing fewer but more essential ESG information is rewarded by the institutional investors (Consolandi et al., 2020).

Although literature has largely proven the interest for financial performance to integrate material ESG, stock markets do not fully integrate relevant ESG information. For instance, companies with recurrent ESG incidents experience negative returns, suggesting that their stock prices do not correctly integrate the ESG risk (Glooner, 2017). As an example, 87% of asset managers believe that climate risks are currently not correctly priced by financial markets (Global sustainable investment alliance, 2019b), particularly for industries with high ESG exposure (Krueger et al., 2020). Actually, investors tend to trade on ESG incidents rather than on the ESG risks which demonstrates that they do not pay enough attention to ESG (Glooner, 2017).

The third driver of the integration of sustainable information is the development of **international and regional guidelines**, such as the principles for responsible investment or the sustainable development goals, and legislative guidelines (Eurosif, 2018). Indeed, the United Nations Principles for Responsible Investments (UNPRI) provide guidelines to investors in order to invest responsibly by integrating environmental, social and governance information in their decision making (UNPRI, n.d.). Currently, the UN PRI are applied by more than 3100 institutions with a total of more than $100 trillions of assets under management (UNPRI, 2020). In Europe, legislation is nudging the financial institutions toward the integration of ESG in their practices. For instance, the regulation 2019/2088/EU, also known as sustainable finance disclosure regulation (SFDR), requires European financial institutions since March 2021 to disclose their exposure to sustainability risks and to disclose their process for integrating sustainability factors in their investment (European Parliament, 2019). This regulation defines

three types of financial products: products without sustainable consideration, products with ESG characteristics, also known as article 8 products, and finally products that are considered as sustainable investments, also known as article 9 products. The amount of disclosure varies between the types of product, article 9 products, being the stricter. Moreover, at the entity level, the regulation requires financial institutions to disclose their risk exposure to unsustainable matters. Therefore, financial institutions cannot avoid considering ESG risks anymore, even though their products do not consider sustainability. Nevertheless, the European Union had left the definition of sustainability to the financial world. To fill this gap, the European Union is releasing bit by bit the EU taxonomy of environmental thresholds that define what can be considered as sustainable. Starting from 2023, the financial market participants will therefore be asked to align with those definitions to be able to market their products as sustainable (EU Technical Expert Group on Sustainable Finance, 2020).

3.2. Integration of sustainability information in investment decisions

Just as there exist many reasons to take sustainability information into account, sustainability information is integrated using various strategies. The main ESG strategies that asset managers use are: negative screening, positive screening, best-in-class, thematic investment, impact investment, ESG integration and active shareholding. Most of these different strategies intervene at one of the three phases of the investment decision process, namely the idea generation/screening phase, the stock analysis and valuation and finally the investment decision (Schramade, 2016). Negative screening, positive screening, best-in-class, impact investment and thematic investment strategies happen during the screening phase while ESG integration happens mainly during the stock analysis and valuation (Schramade, 2016). Finally, only active shareholding happens once the stock is in the portfolio of the asset managers.

Negative screening, also called exclusion, aims at excluding certain sectors, companies, or practices from a fund or portfolio on the basis of specific ESG criteria (Amel-Zadeh & Serafeim, 2018). For instance, the EU taxonomy provides investors with environmental criteria for negative screening by defining what is sustainable or not (EU Technical Expert Group on Sustainable Finance, 2020). Negative screening is largely used among investors with €9.5 trillions of assets under management in 2017 (CFA institute, 2017). Negative screening strategy improves the distribution of financial returns (De & Clayman, 2015) and is driven by product and ethical considerations (Amel-Zadeh & Serafeim, 2018).

Yet, negative screening strategy is perceived to be the least beneficial ESG strategy to investment (Amel-Zadeh & Serafeim, 2018). For instance, the use of negative screening can overweight certain industries with lower ESG exposure and underweight industries with high ESG exposure. This industries bias generates bigger concentration of investment and less opportunity for risk diversification (Alessandrini & Jondeau, 2020). Furthermore, evidences show that the performance improvement is lower for exclusion strategies than for integration strategies using smart beta (i.e., the weighting of the an index using ESG performance for the weighting) (Alessandrini & Jondeau, 2020). For this reason, there has been a shift toward stricter and deeper ESG strategies (State Street Global Advisor, 2017).

Such rapidly rising strategies are **best-in class screening** (e.g. focusing on the best performers), **positive screening** (e.g. focusing on financing companies contributing to sustainability), **sustainability themed investing** (e.g. focusing on one theme of sustainability such as water or energy) and **impact investing** (e.g. maximizing positive impact) (Global sustainable investment alliance, 2019a). Those strategies have a specific focus and a more constrained pool of possible investments, which makes them less predominant (Amel-Zadeh & Serafeim, 2018).

Finally, ESG integration strategy and engagement/active ownership are considered as the most beneficial ESG strategies and are driven by their financial materiality (Amel-Zadeh & Serafeim, 2018). **Active ownership** is "the use of shareholder power to influence corporate behaviors through direct corporate engagement (i.e., communicating with senior management and/or boards of companies), filing or co-filing shareholder proposals, and proxy voting that is directed by ESG guidelines" (Amel-Zadeh & Serafeim, 2018, p. 94). Most investors use some form of engagement and only 16% do not engage at all (Krueger et al., 2020).

Regarding **ESG integration in financial valuation**, this strategy is defined as "the explicit inclusion of ESG factors into traditional financial analysis of individual stocks (e.g., as inputs into cash flow forecasts and/or cost-of- capital estimates)" (Amel-Zadeh & Serafeim, 2018, p. 94). Financial analysis usually consists of a qualitative EIC analysis (i.e., economics, industry and company analysis) as well as a quantitative financial valuation of the company in order to value its stock price. This financial valuation can be performed in two ways: via absolute valuation or relative valuation. Absolute valuation consists of using various financial information such as the revenue growth forecasts, the margin development, the invested capital needs and the risk which is represented by the discount factor (cost of capital) of the target company and integrated that information in diverse possible valuation methods such as the

dividend discount model, the discounted cash flows model, residual income model,… On the other hand, the relative valuation uses valuations of comparable companies to relatively assess the value of the target company. This method typically involves using multiples and ratios such as the price-to-earning ratio.

There are various ways to integrate ESG information. To provide a clearer view on what is integration and what is not, Eurosif (2014) defines three categories of ESG integration. First, non-systematic ESG integration describes the process of making ESG information and researches available to investors who can use that information whenever they need it. The second category is the systematic consideration of ESG information in financial ratings and valuation by analysts. Finally, the third category is the mandatory investment constraints during the valuation process with the use of smart beta or specific weighting of ESG information. Eurosif considers that only the second and third integration categories truly consist of ESG integration.

Regarding its adoption among professional investors, a survey demonstrated that 59 % of them integrate ESG data directly into their decision-making process (CFA institute, 2017). This strategy is estimated to be used for €4.2 trillions of assets under management, a growth of 60% in two years, and is becoming the norm among professional investors (CFA institute, 2017). Ioannou & Serafeim (2015) justify this increase in ESG integration with a shift in analysts' perception of the value of ESG information. The researchers demonstrated that analysts' perceptions of high ESG score changed over time, and its impact on valuation has become positive. Particularly, experienced and higher-status analysts are the first to shift (Ioannou & Serafeim, 2015). Regarding the frequency of use of ESG information, about half of the investors consider them systematically while 45% consider them occasionally (CFA institute, 2017).

ESG integration is considered similar to fundamental financial analysis because investors have the same need to find firm specific information in order to compare the company to its industry peers (Van Duuren & al., 2016). Schramade (2016) developed a three steps approach to integrate ESG in investments' decisions. The first step consists of defining the most material issues that can positively or negatively affect the firm's business model and value drivers. The second step consists of evaluating the impact of these issues on the company. During this second step, investors define performance in each ESG dimension by using key performance indicators (Escrig-Olmedo et al., 2017). They then integrate their preferences in weighting the ESG dimensions with the financial information. Three investors' typologies prevail in the

weighting phase: conventional investors with financial primacy in the weighting phase, social investors who, driven by their personal values, seek to give a lot of weight to ESG and instrumental social investors who aim at seeking compromise between ESG and financial information (Escrig-Olmedo et al., 2017). The final step is to translate the competitive advantage or disadvantage in the valuation model of the investor (Schramade, 2016).

When integrated in the financial valuation, ESG information has thus the potential to influence capital allocation since it clarifies investment decisions (Khemir et al., 2019) and improves decision-making (Schramade, 2016).

During the integration process, analysts and asset managers are influenced by their personal preferences and knowledge as well as by the common practices in their institution (Bender et al., 2018). Indeed, ESG integration is a process that involves judgment and personal preferences since professional investors need to cope with disparate multidimensional information that is qualitative and quantitative, binary or continuous (Bender et al., 2018). In fact, Elliott, Jackson, Peecher and White (2014) found evidences that investors who do not explicitly consider ESG during their analysis are more inclined to succumb to their emotions. This primacy of feelings will result in more extreme valuation, thus less rational, than what they would have found with an explicit consideration of ESG. It also results in a greater willingness to pay (Elliott et al., 2014). In fact, analysts rely on a deliberate and systematic approach when faced with material and negative ESG information, but they rely on heuristics when faced with immaterial and positive information, leading to an irrational increase in valuation in those cases (Guiral et al., 2020). Systematic evaluation of ESG data can therefore prevent this bias of unintentional consideration of ESG information from arising (Guiral et al., 2020). Still, professionals can be prone to the "rater effect" which is the halo effect originating from the successive evaluation of the different ESG pillars (Berg et al., 2019). This effect suggests that a high score in a dimension will influence the analysts to give high scores in the other dimensions.

Then, as most of the financial players intend to create a financial outperformance compared to the market, they must consider and integrate information that others do not have, that is alternative data (In et al., 2019). ESG information is considered as alternative data that investors use to create arbitrage opportunities (In et al., 2019). If market were efficient, any relevant information would have been integrated in the stock prices. However, the efficient market theory is considered inadequate (Lo, 2017) and not every player takes every ESG information

into account because investors are constrained in data processing resources (time, knowledge and people) (van Duuren et al., 2016). As a result, institutional investors favor processed information such as ratings over raw ESG data such as sustainability reports (van Duuren et al., 2016). In, Monk and Rook (2019) argue that the use of only one generic ESG metric implies a tradeoff between width (sources) and depth (volume) of the data since it must reduce three dimensions into one. On the one hand, depth represents the volume of data over the company and the number of companies reporting this type of data, which increases the reliability. On the other hand, width is based on the variety of data sources that are available (sustainability reporting, external analysis,…), which gives a holistic view of the firm and increases validity.

In, Monk and Rook (2019) identified six investment decision variables that are used by asset managers in their decision making: conventional risks (i.e., common market risk), unconventional risks (i.e., the risk taken by the investor in its portfolio construction), cost (i.e., the cost of generating a market outperformance by active management), commitment (i.e., the holding horizon of a stock), influence (i.e., the willingness to practice active ownership & engagement) and construction (i.e., the institution's way to construct a portfolio, based on its resources). Based on these variables, they suggested that the use of data should be tailored to each asset manager's objectives, such as creation of out-performance, the creation of impact,… Therefore, their research pleads for a user-oriented approach of ESG, that is, ESG data quality should be tailored to the professional investors' goals. In, Monk and Rook (2019) define the ESG data quality on 6 dimensions: the reliability (i.e., the accuracy of the data), the granularity (i.e., the level of the data (e.g., is it at the plant, at the company or at the industry level?)), the freshness (i.e., the age of the data), the comprehensiveness (i.e., the completeness of the data), the actionability (i.e., the ability of the information to generate actions by investors) and the scarcity of the data (i.e., the potential for investors to use data that others do not have).

This variance of objectives and preferences between investors has also been pointed out by Eccles, Serafeim and Krzus (2011) who demonstrated that equity investors show interest in sustainability information such as greenhouse gases emissions because they want to assess the potential benefits of sustainability while fixed income investors mainly focus on governance to identify potential risks. Companies should therefore disclose the information that suits best to their investor-base. Nevertheless, companies have also the potential to shape their investor-base by disclosing information that suits better to some type of investors (e.g. short-term vs longer-term investors) (Kotsantonis et al., 2016). For instance, the inclusion of a company to the Dow

Jones Sustainability Index (DJSI) results in more analysts following the firm and an increase in long-term investors in the firm's investors base (Durand et al., 2019; Starks et al., 2020). Yet, the inclusion in the DJSI does not lead to significant increase in stock price or trading volume, which suggest that such inclusion increases market attention rather than market reaction (Durand et al., 2019). Correspondingly, a decrease in ESG performance decreases the share of long-term investors in the company (Starks et al., 2020)

This variety of use among investors has also been pointed out by a survey from PricewaterhouseCoopers. Indeed, they concluded that part of the lack of standardized practices in the integration of sustainability information was linked to the lack of standardized framework (PWC, 2019). Therefore, different actors will use the information differently because they have different priorities such as active/ passive management or long-term/short-term horizon. For instance, short-term active investor will focus more on the short-term risk and compliance to the law while long term investors will focus on long-term value creation and long-term risk (PWC, 2019). Then, long-term investors are more patient than other investors and have a lower portfolio turnover (Krueger et al., 2020; Starks et al., 2020). For instance, they react less negatively to negative earnings announcement or poor stock performance (Starks et al., 2020).

Similar to other investors, **private equity firms** also integrate ESG in their analysis. In a survey conducted by Pricewaterhouse Cooper (2016), 60% acknowledge screening target companies for ESG risk before the acquisition. About the same percentage (58%) also include a transformation plan for ESG issues. However, only 38% include ESG issues in the program for exit. Regarding the rationale for this focus on ESG issues, 40% of the respondents say that ESG performance impacts the valuation of the company and poor performance could prevent them from investing in the company. 41% also mention a willingness to pay for a premium for a company with strong ESG performance. However, only 14% reported to earn a premium for ESG at the exit of a company (PwC, 2016a).

Finally, the importance and value of sustainability information depends on the trends showed by the financial information. For instance, negative financial information will reduce the use of non-financial information while positive financial information will increase the focus on non-financial information. (Coram et al., 2011). Hence, investors' need for ESG information varies according to the financial outlook. Yet, other studies find contradicting results. Indeed, Carnevale and Mazzuca (2014) find that investors give more credibility and weigthing to

sustainability reports than financial reports in times of uncertainty and crisis. De and Clayman (2015) support this position by arguing that stocks of companies with better ESG ratings perform better in times of crisis. Moreover, the reduction of risk and stock volatity of ESG performers is stronger in times of crisis (Bouslah et al., 2018)

Recently, the Covid-19 pandemic reopened the debate of ESG value and performance in times of crisis. On the one hand, Demers, Hendrijkse, Joos and Lev (2021) found insignificant effect of high ESG ratings on return performance during the crisis. On the other hand, Albuquerque, (2020) find that companies with high ESG ratings before the crisis lead to better return performance and lower stock price volatility during the pandemic. Finally, Berg, Fabisik and Sautner (2020) find that although firms with high ESG ratings prior the pandemic did not outperform during the pandemic, the change in rating methodology of Refinitiv ESG data significantly altered that conclusion. Indeed, under the new rating methodology, companies with high ratings outperformed their peers during the pandemic (Berg et al., 2020). Hence, this outperformance of ESG using high ratings would not have been feasible by following the ratings prior the pandemic (Berg et al., 2020). This confusion in the litterature also results from relying solely on ESG ratings that do not properly reflect all the underlying ESG issues (In et al., 2019).

Besides, humans react differently to positive or negative events. For instance, individual react more strongly losses than gains (Kahneman, 2011). Those results hold for financial events but also for ESG events (Krüger, 2015). Accordingly, ESG practices aiming at offsetting corporate social irresponsibility are viewed positively while other positive ESG events are sometimes viewed as agency costs by short-term investors since they represent cost in the short-term for benefits in the long-term (Krüger, 2015).

3.3. Barriers to sustainable information integration

Although the integration of ESG information is booming, some barriers prevent professional investors from using this information. A recent meta-analysis has identified 4 levels of impediments: the market, firm, regulatory and individual levels (Friede, 2019). Market level barriers are the most prominent for investors, followed by individual level barriers.

First, **market level barriers** are investors institutions, market dynamics, company data, ethics and stewardship (Friede, 2019). Investors institutions is the result of the lack of perceived

business case for ESG integration. For instance, a study reported that 17% of asset managers showed concerns regarding return performance of sustainable portfolio and about a quarter (24%) had concerns about greenwashing (Eurosif, 2018). Investor institutions also results from valuation models that are not adapted to the integration of ESG (Friede, 2019). Then, market dynamics consist of the lack of demand from their client. Thirdly, company data issues are the lack of quantitative ESG data, the lack of comparability between firms and the quality of the information (Amel-Zadeh & Serafeim, 2018; CFA institute, 2017; State Street Global Advisor, 2017). Indeed, the reported ESG data is often considered too general or too extensive when companies report unmaterial information (Amel-Zadeh & Serafeim, 2018). This inconsistency points out the need for external assurance, which is supported by 69% of the investors (CFA institute, 2017). Regarding ethics, conflicts of interests within the financial institutions also prevent investors to properly integrate ESG information. Finally, stewardship consist of the activism of investors' client that refuse the integration of ESG.

Secondly, **firm level** impediments are the lack of resources, the lack of managerial incentives, structural separation and poor internal communication (Friede, 2019). The lack of resources encompasses the lack of human, knowledge, technological and time resources and the cost of those resources to analyze and integrate ESG data (In, Monk & Rook, 2019; Amel-Zadeh & Serafeim, 2018; Van Duuren & al., 2014). Then, the lack of managerial incentives to integrate ESG information hinders a stronger ESG integration by analysts (Friede, 2019). Also, the organizational structure can influence the adoption as structural separation of ESG teams and traditional investment teams slows ESG integration (Friede, 2019). Finally, the lack of communication and training around ESG deters proper integration (CFA institute, 2017).

Thirdly, **individual level** barriers are behavioral obstacles and knowledge. Behavioral obstacles consist of the biases and beliefs of investors such as short-termism or uncertainty aversion. While the lack of knowledge can prevent analysts to properly integrate ESG information.
Fourth, **regulatory level** impediments are regulations regarding ESG issues such as externalities, the lack of standard practices in terms of sustainability reporting and the lack of precise definition of ESG integration (Friede, 2019; Amel-Zadeh & Serafeim, 2018; CFA institute, 2017; Zaccone, 2020). This lack of standard practices also leads to a gap between ESG information at the firm level and at the portfolio level since financial materiality of ESG dimensions varies according the industry, portfolio exposure is hard to assess (TCFD,2020)

Among the barriers mentioned above, the most cited challenges are the lack of client's demand, the lack of analyst's knowledge, the lack of reporting standard, the low quality of company and a still unclear business case for ESG integration considering the cost and benefits. (McKinsey, 2019; Friede, 2019; Amel-Zadeh & Serafeim, 2018; CFA institute, 2017).

3.4. The current state of ESG integration in investment decisions

3.4.1. Overview of the use of ESG information

Globally, only a third of investments are made considering ESG but about 80% of the institutions have ESG component in their investment strategies (State Street Global Advisor, 2017). Financial institutions can be divided between three groups on an ESG adoption continuum: 44% are low adopters with less than 25% of assets under ESG strategies in their portfolios, 39% are intermediate adopters with between 25 and 50% of assets under ESG strategies in their portfolios and 17% are high adopters with more than 50% of assets under ESG strategies in their portfolios (State Street Global Advisor, 2017). Then, 78% of the investors recognize the value of shareholders activism but only 26% engage themselves due to lack of resources (State Street Global Advisor, 2017).

Regarding the acquisition of information, the majority of asset managers report having an ESG expert team while a quarter acquire ESG information themselves (Eurosif, 2018; State Street Global Advisor, 2017). Yet, trends show that financial institutions want to decrease this structural separation of teams to better integrate ESG into the financial valuations. (Eccles & Klimenko, 2019)

Overall, investors who have integrated ESG information in their decision-making feel satisfied of their performance (State Street Global Advisor, 2017).

Regarding the adoption of international guidelines, Kotsantonis, Pinney and Serafeim (2016) demonstrated that the Principles for Responsible Investment do not hold their promise. Indeed, signatories do not fully comply with the guidelines. Moreover, signatories mainly follow sustainable principles based on the exclusion of companies and industries, a practice that does not allow them to fully capture the potential of sustainable investment, leading to a deception among investors (Kotsantonis et al.,2016). Then, NFRD requirements do not satisfy the majority of the financial players (European Commision, 2020). However, professional investors seem to welcome the new European Taxonomy since 81% of the respondents from

the financial sector believe that legal provision should use the taxonomy as basis for environmental disclosure in the sustainability reports.

3.4.2. Content preferences

According to Clark, Feiner and Viehs (2015), board structure and executive compensations are the most important aspects of the governance realm; pollution, resource efficiency and environmental management practices are the most important aspects of the environmental realm and employee relationships is the most important aspect of the social realm.

A study from the CFA institute (2017) demonstrated that 73% of investors take ESG issues into consideration, governance being the favorite (67%) since it is associated with quality of management (van Duuren et al., 2016). Those results are consistent with the researches of Eccles, Serafeim and Krzus (2011) who recorded the number of requests on Bloomberg terminals, a leading data provider for professional investors, to demonstrate that professional investors valued governance and environmental information over social information because such information is easier to quantify and integrate in valuations. In contrast, Khemir, Baccouche and Ayadi (2019) found that governance and social information have more influence on investment decisions than environmental information. Nevertheless, each industry has a different financial materiality which explains why the dimensions' importance varies between studies (Consolandi et al., 2020; Khan et al., 2016). Analysts should thus tailor the weighting of the ESG dimensions according to the industry's material issues (Consolandi et al., 2020). But they still should consider all three dimensions since ESG issues are interconnected (Galbreath, 2013). Consistent with the literature, a recent survey demonstrates that financial market players view all ESG disclosure elements as useful but consider the information on financial materiality such as risks and opportunities, impact on organization and resilience of the strategy as the most useful (TCFD, 2020).

Yet, the weighting of ESG information differs between regions. European investors are more optimistic about ESG investing, leading to a bigger weighting of environmental and social issues than their American peers (Amel-Zadeh & Serafeim, 2018; van Duuren et al., 2016).

When it comes to what is missing in sustainability reports, targets, progress tracking, scenario analysis and forward looking information are the four most cited categories (European Commision, 2020).

3.4.3. Format preferences

Cognitive theory suggests that the format of the reported information also matters when investors process the information. This cognitive process consists of the information acquisition phase and the information evaluation/weighting phase (Reimsbach et al., 2018).

Regarding the **information acquisition phase**, investment-related judgment requires high task proximity due to its multi-dimensions. It therefore requires high display proximity of information (Reimsbach et al., 2018). The researchers showed that integrated reporting reduces the cognitive cost of information acquisition due to the combined information that provides high display proximity. Yet, it does not improve the amount of information remembered by the investors (Reimsbach et al., 2018). Rather, integrated reports provide better connectivity of information, leading to lower overload of analysts and lower forecast errors (Zhou et al., 2017). Also, integrated reports prevent investors from opting-out such information as it could be the case with stand-alone sustainable report (Reimsbach et al., 2018).

Regarding the **information evaluation and weighting phase**, ESG information has a stronger impact on value estimates when published in a separate sustainability report than in an integrated report, since separate information makes it more salient (Haji et al., 2020).

Moreover, the use of **external assurance** increases the credibility of report and thus its weight, particularly when the assurer is a professional accountant rather than a sustainability expert and when the company has a large ESG exposure and thus risk of misstatement (Pflugrath et al., 2011). External assurance also increases the perceived sustainability performance, the willingness to pay of investors and the weighting of sustainability information in investment decisions, particularly when the ESG information is of high strategic relevance (Reimsbach et al., 2018; Cheng et al., 2015). Yet, this increase is stronger for separated reports due to the halo effect between the combination of assured financial information and non-assured non-financial information in integrated reports (Reimsbach et al., 2018; Haji et al., 2020). The mix of assured and non-assured information in integrated reports bias investors who therefore tend to believe that the whole integrated report is assured and derive higher value estimates (Haji et al., 2020). Hence, the assurance of the non-financial information of integrated report has a smaller benefit than for other types of report since investors already believed the information was assured (Reimsbach et al., 2018; Haji et al., 2020). Regarding the need for assurance, 97% of investors mentioned that the sustainability reports should be assured by a third-party and 67% claim that

it should be a complete audit similar to financial audits (McKinsey, 2019). Similarly, 78% of the users believe that the EU should require assurance on non-financial report, with reasonable assurance being slightly preferred to limited assurance (European Commision, 2020).

The **timing of disclosure** is also a key element of the evaluation phase as stand-alone report can result in anchoring, meaning that investors interpret ESG information according to the valuation based on the previously disclosed financial information (Arnold et al., 2018). This temporal disconnection thus leads to an underreaction of ESG information when disclosed in a stand-alone report compared to an integrated report, implying that integrated report allows a better ESG integration and weighting. Yet, investors can nearly overcome the anchoring effect if the disclosed ESG information is negative, suggesting that negative information is more important and that the anchoring effect is stronger for positive ESG information (Arnold et al., 2018).

Overall, financial players are divided (50%-50%) between reporting in a stand-alone report or in a single report (combined or integrated) (European Commision, 2020). But the majority of the users and preparers prefer GRI standards, followed by the TCFD, the UNGC and the SASB standards (European Commision, 2020). Then, the use of integrated reporting is low among investors, suggesting that it failed to match the needs of the financial analysts (Slack & Tsalavoutas, 2018). Indeed, only a third of the interviewed asset managers found this framework relevant. This lack of embeddedness lies in the lack of comparability with typical reports and in the particularity of its complex framework with its own jargon that does not match the incentive structure of capital markets (e.g. short-termism) (Slack & Tsalavoutas, 2018). Moreover, the researchers found that analysts can form a decision without using the integrated report therefore questioning the usefulness of such reports. Consequently, although the use of integrated reports in a mandatory disclosure context improves understanding and forecast accuracy, its use in a voluntary reporting context compromises comparability and increases complexity (Slack & Tsalavoutas, 2018).

Another important source of ESG information for investors is **ESG ratings**. ESG raters provide summarized and treated data that investors can directly use in their ESG strategy. ESG ratings allow investors who don’t have ESG analysis capabilities or resources to integrate that information in their investment decisions. Leading rating providers are MSCI, Sustainalytics, Thomson Reuters, Bloomberg, FTSE, Oekom Research, RepRisk, Inrate, RobecoSAM, and

VigeoEIRIS (Bender et al., 2018). Rating providers can be divided into three categories, based on their purpose: Market providers who provide ESG data and ratings as part of their financial information offering such as Bloomberg, FTSE, MSCI or Thomson Reuters, ESG-exclusive providers who focus solely on ESG researches such as RobecoSam, Sustainalytics, Oekom Research, Inrate or VigeoEIRIS and finally specialized providers who provide specific information on a topic such as the Carbon disclosure project or on risk only such as RepRisk (Douglas et al., 2017). Then, ESG data providers also differ in terms of governance (e.g. some are for-profit & privately owned companies while others are non-profit or civil society organizations) which can impact their incentives and thus their analysis (Douglas et al., 2017).

The raters also have different sourcing and data acquisition methods or even their own data, resulting in different ratings for a same target company which creates confusion among professional investors (Bender et al., 2018; Berg et al., 2019; Diebecker et al., 2018; Dorfleitner et al., 2015; Douglas et al., 2017; SustainAbility, 2019). Moreover, these discrepancies are more important for top ESG performers (Berg et al., 2019). Accordingly, different rating methodologies lead to different weightings and measurement of ESG matters, especially for the social pillar (Dorfleitner et al., 2015). As an example, some companies use large amount of analysts, others use artificial intelligence to rate companies and some rating agencies use both in a hybrid form (Douglas et al., 2017).

Bender, Bridges, He, Lester and Sun (2018) found five data challenges that create such discrepancies between raters: the definition of materiality, the variation of materiality for each industry, the aggregation of the score in each ESG dimension, the estimation of unreported information, the goal of the rating (e.g. ESG risk vs opportunities, quantitative vs qualitative, investment horizon,…). In fact, Berg et al. (2019) found that scope and measurement (e.g. the number and type of indicators) are the main drivers of differences while the weighting is less important. To complement these challenges, another study argues that the main issues associated with ratings are the lack of transparency of their process, low commensurability between ratings, trade-offs among criteria, lack of an overall score and lack of integration of stakeholders' preferences (Escrig-Olmedo et al., 2019). Nevertheless, this diversity of assessments and methodologies bring adapted solutions to investors' heterogenous preferences and views of materiality (Berg et al., 2019).

Regarding the alignment of the ratings with sustainability principles, ratings have adapted to the new sustainable principles such as the Sustainable Development Goals but they do not fully align with those principles yet (Escrig-Olmedo et al., 2019). For instance, ratings do not integrate intergeneration perspective or life-cycle thinking resulting in a incomplete view of sustainable development (Escrig-Olmedo et al., 2019).

Overall, users see RobecoSAM, MSCI, CDP and Sustainalytics ratings as the most qualitative and useful ratings, and the usefulness is lower for European users compared to North American users (SustainAbility, 2019). Yet, only 50% of the users consider them as really useful (SustainAbility, 2019).

To conclude, ratings offer a cost-efficient way to integrate ESG information. Yet, the reduction of multi-dimensional and complex information into single scores does not allow investor to properly integrate all the ESG information into their investment decisions (In et al., 2019).

3.5. Disconnection between the supply and the demand of sustainability information

Currently, supply and demand of ESG information are disconnected. Indeed, recent surveys from McKinsey (2019), PWC (2016; 2019) and the European Commision (2020) asked to investors and executives their views about sustainability reporting. They found out that financial market players cannot use the sustainability reports as they do not contain enough information to make accurate decisions. For instance, a survey from PwC (2016) found that 72% of investors are somewhat dissatisfied by sustainability reports. Companies also do not meet their goals with the reporting but they still continue to report due to the difficulty to disengage from sustainability activities reporting (Bhimani et al., 2016). The two main reasons for this disconnection are the differences in goals between preparers and users of the reports and the divergences in terms of practices.

A first reason for this disconnection is the **divergence in perceived goals** of sustainability reporting between companies and investors. Indeed, while companies mostly believe that sustainability reports signal their future growth, 63% of investors believe that it mostly give information on risks (PwC, 2016b). Moreover, when it comes to the importance of sustainability reports, 65% of companies find it very important compared to 31% for professional investors (PwC, 2016b). In fact, sustainability reports only come in third position

in the favorite sources for sustainability information of institutional investors, after publicly available information and third-party research such as ESG ratings (CFA institute, 2017).

Then, the different reporting frameworks diverge in terms of goals, terminologies and targeted audiences, which creates confusion among investors and reporting companies (Corporate Reporting Dialogue, 2019). Indeed, while some reports are targeted at investors only, others are targeted at a whole range of stakeholders, leading to a different perception of materiality (Corporate Reporting Dialogue, 2019; Eccles & Krzus, 2014). In fact, users mention that sustainability reports are deficient in terms of comparability (84% or the users), reliability (74%) and relevance (70%) (European Commision, 2020).

Regarding **comparability**, 60% of companies think that their reports are comparable with others but 92% of investors mentioned that published data did not allowed comparability (PwC, 2016b). To mitigate this situation, most of investors are asking to reduce the number of reporting frameworks to one standard while over 80% of investors and executives support the idea of mandatory reporting (European Commision, 2020; McKinsey, 2019). For asset managers, a more unified framework would allow them to better allocate their capital (85% of the respondent), better manage their risks (83% of the respondents)(McKinsey, 2019) but also to take a longer-term approach to investment (Corporate Reporting Dialogue, 2019). For executives, it would help them to benchmark their company (80% of the respondents) and 68% acknowledge that it would help the company to create value or mitigate risk (McKinsey, 2019).

Recently, the different sustainability report framework providers (IIRC, GRI, CDP, SASB,…) created the better alignment project that aims at aligning the frameworks on climate-change disclosure (Corporate Reporting Dialogue, 2019). The project will focus on defining the commonalities and interrelationships between frameworks and on precising the target audience and focus of each framework. Yet, while 63% of investors agreed that standardization will attract more capital to sustainable investment, 19% say that it would decrease the information asymmetry among financial market players and thus would decrease their potential advantage of having more information/ better insights and their ability to generate an alpha. The remaining 18% agreed with both statements (McKinsey, 2019).

Regarding **reliability**, only 29% of professional investors consider themselves confident in sustainability reports (PwC, 2016b) which justifies why 97% of investors mention that the

report should be assured by a third-party and 67% claim that it should be a complete audit similar to financial audits (McKinsey, 2019).

Regarding **relevance**, 72% of users think that companies should disclose their materiality assessment process (European Commision, 2020). Moreover, reporting tends to lack of enough details in certain areas of reporting. For instance, climate related disclosures are still insufficient (KPMG Impact, 2020). While more than 50% of the 250 biggest companies in the world acknowledge the financial risk of climate change in their report, only one fifth provide climate change scenario analysis and strategy to achieve carbon reduction targets (KPMG Impact, 2020). Then only 31% address the climate risk in a specific section of the sustainability report (KPMG Impact, 2020). Within those risks, companies seem to report more physical impact of climate change on their assets compared to transitional risk (i.e. the risk of climate related policies impacting the company) (KPMG Impact, 2020).
Similarly, the Project task force on climate-related reporting (2020) pointed out that companies miss the opportunity to show their resilience to climate change. Indeed, companies rarely offer enough details on the resilience of their business model to climate risks. Overall, companies successfully report their sustainability intentions but lack descriptions of the underlying processes and strategies, and particularly long-term strategies, to reach those goals (KPMG Impact, 2020; Project task force on climate-related reporting, 2020).

Finally, when it comes to **information accessibility**, users and preparers believe that digitalization should be better embraced for sustainability reporting such that data can be machine-readable (64% of the respondents) and accessible through a single data point (65% of the respondents) (European Commision, 2020).

3.6. Proposed model of ESG integration by professional investors and its influences

Based on the literature cited above, I developed a model summarizing the use and integration of ESG information by financial institutions. This model is composed of three steps: the motivation of asset managers to consider ESG, the ESG strategy definition and the investment decision process. While the motivation and the ESG strategy are defined at the company and/or at the portfolio level, the investment decision process repeats for each stock.

As mentioned earlier, the willingness to consider and integrate ESG information starts with the motivation for integration ESG that can be non-financial, financial or both. This intention for considering ESG then morphs into an ESG strategy. The various possible strategies have been described extensively earlier. Those strategies consider ESG at different levels of depth, from high-level screening to deep integration into financial valuation. As developed in the review of literature, those strategies determine how ESG will be used during the investment decision process and the information needs of the professional investors.

Then, the investment decision process is composed of three phases, the screening phase that defines an investable universe of stocks for the asset managers based on ESG criteria, the stock analysis, ESG analysis and valuation phase that integrates ESG in the financial drivers and the investment decision phase (Schramade, 2016). The investment decision is taken by the fund managers/assets managers who combine both financial and ESG analysis to take a decision about buying the stock or not.

The literature has also identified factors (i.e., drivers and barriers) that influence the consideration and analysis of ESG information. Those elements are distributed between different levels of influence, namely the market level, the firm level, the regulatory level and the individual level.

Nevertheless, gaps remain in this model. For instance, literature does not indicate how the different ESG strategies are used by the professionals or how the use of sources is determined. Moreover, the exact effect of the influencing factors remains unclear. Hence, my research aims at filling those gaps by improving the comprehension of the different steps of this process as well as the influences at play.

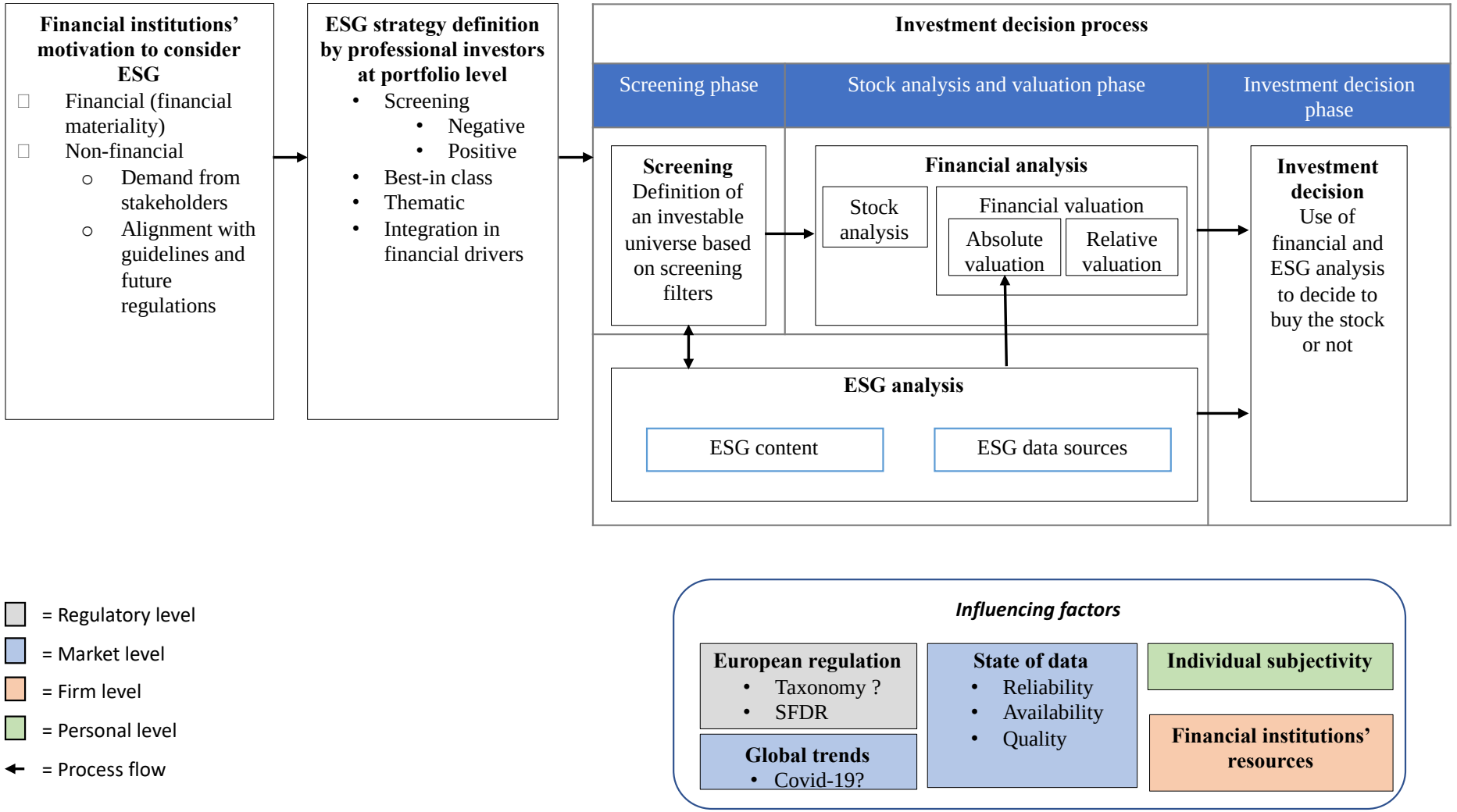

Figure 3: Proposed model of ESG integration by financial professionals and its influences

4. Qualitative research: Understanding the use of sustainability reporting within the financial world

4.1. The problem and the research questions

In the previous sections, I covered the relevant literature about the use of ESG among investors. Although we are getting a better picture about the use of ESG by investors, the exact practices and the reasons for those practices are still unclear. In order to fully answer my research question "***How is ESG information integrated by professional investors in their investment decisions?",*** some sub questions still need to be answered. For instance, although we know that the ESG strategy determines the content assessed and the sources used, it is still unclear what are the exact content needs of the financial market players. Moreover, various sources are used by the professionals, but it is still unclear why some sources are chosen over others and why multiple sources are used or not.

Then, we know that various factors influence the use of ESG by the financial institutions. Yet, very limited knowledge exists about where, and at which stages this influence arises. Moreover, current developments in the European Union might have an impact on the consideration of ESG data by investors. The two main developments on the financial landscape are the Covid-19 pandemic and the EU taxonomy.

The Covid-19 pandemic has largely affected the European countries and markets. The resulting crisis has significantly altered the financial markets by stopping the production, disrupting the supply chains and altering the consumption (Albuquerque et al., 2020). As a result, the stock market plunged over the prospects of losses and lower revenues than forecasted. As identified in the review of the literature, the consideration of ESG information by professional investors is influenced by the financial outlook (Carnevale & Mazzuca, 2014; Coram et al., 2011; De & Clayman, 2015). Yet, no consensus exists about the influence of high ESG ratings of stock performance during the Covid-19 pandemic (Albuquerque et al., 2020; Berg et al., 2020; Demers et al., 2021). This debate points out that more subtleties are needed about what ESG information is considered and that ratings do not properly depict those subtleties (In et al., 2019). We might therefore expect an influence of the pandemic on the ESG information considered, but more research is needed to understand its exact influence.

Secondly, the EU taxonomy has been recently released by the European commission. This taxonomy defines the investment thresholds that determine whether or not an investment can be considered as sustainable. While the adoption of such standards will become mandatory, investors' views on this creation of a common definition for ESG investment are still unclear. Then, we don't know yet what impact will this new regulation have on the existing ESG strategies.

Therefore, a lack of research remains to understand the use of ESG data by professionals, the drivers and barriers of this ESG use as well as to understand the impact of the COVID-19 and the EU taxonomy on this use of ESG.

4.2. Methodology

4.2.1. The motivations for a qualitative approach

In order to address this gap in the literature, I decided to conduct a qualitative research. Indeed, qualitative research is better suited than quantitative research to answer questions about how and why a phenomenon happens (Silverman, 2000).

The qualitative research took the form of individual interviews with professional investors. Individual interviews lead to deeper and more accurate insights as more subtleties can be captured (Stokes & Bergin, 2006). Such interviews are thus well suited for qualitative research with experts and to explore motivations. Moreover, the one-to-one context has a sense of privacy that limits social pressure for socially accepted answers, which suits well to sensitive topics (Gill et al., 2008)

Following this methodology, I therefore explored during one-to-one interviews how and why ESG is use that way by asset management firms. I also explored the influence of various factors on those practices.

4.2.2. Choice of sample

As developed in the review of literature, a broad range of practices exist when it comes to ESG. In order to better reflect those various shades of ESG, I aimed at having a diverse sample in terms of role and experience of the interviewee but more importantly, in terms of size and sustainability positioning of the financial institutions. My interviewees were conducted with a broad range of financial institutions: asset management companies who manage multiple portfolios (some of them had a sustainable positioning while other did not), a holding company

and two investment banking institutions who do not trade on the stock market. The interest for having institutions dealing with non-listed companies was to compare the sources of information and the ESG content used with the practices of asset management companies trading listed companies. This diversity allowed me to better depict the use of ESG information in the different branches of the financial markets. The institutions interviewed are located in Belgium, The Netherlands and Luxembourg, but do not necessarily originate from those countries. Some interviewees preferred to remain anonymous and avoid the disclosure of their institution's name. In total, I contacted about 25 professionals but only 10 agreed to have an interview. The first interview has been conducted with two interviewees, at their demand. The table in appendix 1 summarizes the profiles of the interviewees.

4.2.3. Method of collecting the information

The interviews were conducted in a semi-structured way, that is, common themes are developed across the interviews, but flexibility is given for a better exploration based on the interviewees' answers and expertise. Therefore, semi-structured interviews allowed me to create consistency between the interviews with tailored questions based on each interview's unfolding.

Each interview was conducted online and was recorded, with the agreement of the interviewee. Data sharing agreements were sent to each interviewee to validate their agreement and to leave them the opportunity to opt for anonymity of their name and their institution.
The interviews were conducted either in English or French, based on each interviewee's preference.

For those interviews, I prepared a set of diverse questions divided in various subthemes. The interview guide can be found in Appendix 2.

The interviews started with a general introduction about myself and then I let the interviewee present herself/himself. We would then discuss the sustainable investment initiatives and ESG labels such as the UN principles for responsible investments or Toward sustainability label for Belgian funds.
After having set the sustainable investment scene, we would deep dive into the use of ESG data in the investment processes, the ESG investment strategies (exclusion, best-in-class,...), and the sources of ESG data. Since data source is central to ESG investing, I would then ask questions

about CSR reports of companies and their value for the professional only if those professionals were knowledgeable about such type of report.

After having discussed the companies' practices with regards to ESG, we would discuss factors influencing sustainable investment strategies such as the financial outlook (using the Covid-19 as an example) as well as the European legislative context.
Finally, I would ask about any barriers to the use and integration of ESG data that would not have discussed. Once all the topics described above were covered, I would then ask the interviewee if she/he had something to add with regards to ESG that we did not covered during the discussion.

4.2.4. Method to analyze information

Each interview has been carefully transcribed based on the video recording of the online discussion. The 9 interviews have been transcribed in the language of the interview and can be found in appendices 3-11.
The interviews were analyzed using thematic analysis. Under thematic analysis, each interview is coded into different themes (Neuendorf, 2017). I used Excel to break down the interviews in a matrix with one interview per line and one theme per column. The units of analysis used were groups of sentences about a same theme.

5. Analysis of the results

This section first starts with an analysis of the reasons for integrating ESG information in investment decisions. Then, I will deep dive in the analysis of various investment decisions process and the role of ESG in those processes. Thirdly, I discuss the sources used by investors, with regards to the content and the format needed of this information. Finally, I discuss the factors influencing the use of ESG information and the barriers to the use of ESG information.

5.1. The motivations to consider ESG information

The literature has identified multiple reasons to use and integrate ESG information in the investment decision making. The most cited reasons were demand from stakeholders & product strategy, financial materiality and alignment with guidelines and future regulation (Amel-Zadeh & Serafeim, 2018; Eurosif, 2018; Global sustainable investment alliance, 2019a; PwC, 2016a; State Street Global Advisor, 2017; Zaccone & Pedrini, 2020).

Those motivations can be divided in two categories: financial motives and non-financial motives. Both types of motives were cited by the interviewees, but they did not state if any of the two types was dominant. As summarized by Orcadia's co-founder:

> *"When I express myself on the subject, I always put two arguments, saying these two arguments which are we will say "orthogonal" that is to say arguments which are not dependent on each other and which are very different and which we are not going to arbitrate. And I say there are ethical type arguments and there are financial type arguments, and you may want to invest responsibly for financial reasons like you may want to invest for ethical reasons and I don't have to judge." (Economic advisor & co-founder, Orcadia, translated from appendix 2)*

As stated in this quote, both ethical and financial motives are often used as marketing arguments by professionals to convince their clients. They can thus convince clients who look for an ethical investment as well as clients who look for financial returns with a single type of portfolio, that is, a sustainable portfolio.

Although financial institutions often present both arguments to their clients, the real motivations to consider ESG are not always those two ethical and financial arguments. For non-financial motives, three subtypes of motives were mentioned during the interviews: normative motives, coercive motives and mimetic motives.

First, the **normative motive** means that financial institutions adopt ESG consideration because they consider it as the norm. Often, such motive is defined at the founding of the financial institution, as part of their "raison d'être" and based on the values of the founders. It thus seems that the companies advancing this motive are more likely to be part of the early adopters group. Those companies market their funds for investors with similar values and willing to invest their money sustainably but also to attract new people in sustainable investment. Hence, ethic is a key motive to consider ESG in those institutions but also to market their products.

> *"I think it's part of the DNA." (Thematic portfolio manager, Sustainable asset management company, appendix 9)*

> *"So, the motivation at the start is first and foremost a personal motivation." (Economic advisor & co-founder, Orcadia, translated from appendix 2)*

Secondly, the **coercive motive** involves pressures from external stakeholders. In the case of ESG consideration, the external stakeholders are primarily composed of the clients and the regulators. Consequently, companies advancing this motive are more likely to adopt ESG in reaction to those pressures from their stakeholders rather than proactively.
Regarding the pressure from the clients, financial institutions are answering demands of their clients for marketing purposes. Some interviewees pointed out that the investors (i.e., the clients) are now becoming more aware of the impact of their portfolio and want their money to be invested sustainably. For instance, clients don't really need to be convinced anymore of the benefits of sustainable investment, as explained by Orcadia's co-founder.

> *"The other thing is that, I think, that there is a fairly significant awareness on the side of our investors, it is something that we can no longer ignore." (Investment analyst, investment bank 1, translated from appendix 7)*

> *"But there is still, and one should not hide it, a small marketing aspect. We know the funds that work best are sustainable and therefore think that this will perhaps not be the first reason that everyone will quote you first. I might be wrong to quote it first, but I think there is already a marketing reason for popularity in the market and even for tendencies, trends."(Junior fund manager, Belfius IP, translated from appendix 3)*

Regarding the pressure from the regulators, regulation is a key factor for the integration of ESG information. On the one hand, regulations can force the adoption of certain ESG practices and on the other hand, regulations, such as the taxonomy, can influence current practices as I will develop further in part 5.4. For instance, the SFDR (sustainable finance disclosure regulation) requires, since March 2021, the disclosure of financial institutions' risk exposure to sustainability related issues. Furthermore, stricter disclosure constraints apply to products considering ESG and even stricter disclosure constraints apply for portfolios marketed as sustainable. As described by the Head of investment solutions & fund selection of BelfiusIP, this regulation is nudging the financial world to at least consider ESG risks.

> *"SFDR is something that is clearly changing the market as a whole. It's a good thing because it's a regulation, it's binding, it makes a lot of people work for us, it makes the consultants work but at the same time these probably something that goes in a good*

direction I think." (Head of investment solutions & fund selection, BelfiusIP, translated from appendix 3)

The third non-financial motive, based on the innovation adoption motives, is **mimetic.** Mimetic motive consists of reproducing the moves and practices of competitors. Companies following this motive are therefore following industry's trends and are not part of the early adopters of sustainable investment.

"So, there is really a desire to go in this direction, probably from a marketing point of view but also because it's a fundamental trend that cannot be avoided. [...]In a few months or even years, the funds which will not have this approach are doomed I think, it is perhaps a personal point of view, but doomed to disappear."(Junior fund manager, Belfius IP, translated from appendix 3)

"No, it's more because the bank, all the banks now are really looking forward into investing green companies and so on, so you have a look at that." (Investment analyst, Investment bank 2, appendix 8)

Overall, I adapted the framework of Bhimani, Silvola & Sivabalan (2016) that considers that the reasons to report can be associated to any other innovation as there are early and late adopters who adopt the reporting practices for various motives. I applied the same reasoning to the use and integration of ESG information that can also be approached as most innovations. Similar to Bhimani, Silvola & Sivabalan (2016), I thus argue that non-financial motives are composed of normative, coercive and mimetic motives for asset management companies to consider ESG information in the investment processes. Based on this categorization, we can differentiate proactive players who consider ESG based on normative motives and reactive players who consider ESG based on coercive and mimetic motives. Yet, no clear distinction exists since various motives can combinedly drive the consideration of ESG information.

Regarding **financial motives,** the interviews confirmed the propositions advanced by the literature. Most of the interviewees stressed out the importance of ESG information in the financial valuations of companies. This information is thus key for asset managers and analysts to better assess the future performance of the companies.

> *"Because I think you cannot longer exclude the financial impact and the impact per se. Like every decision you do in life has a positive or negative impact. [...] I mean, everything is connected and of course that has a financial impact if you are doing something wrong in a community you might have a fine or you might have to invest." (Thematic portfolio manager, Sustainable asset management company, appendix 9)*

According to the professionals, ESG improves the return-risk couple which is in line with various studies (Clark et al., 2015; Consolandi et al., 2020; De & Clayman, 2015; PwC, 2016b; Utz et al., 2015). Nevertheless, those professionals do not really agree on whether the better performance happens on the return side or on the risk side. Some of them advance a risk reduction argument because most of the impact that ESG can cause to companies is negative. In that case, as discussed Pollard, Sherwood and Klobus (2018) and Krueger, Sautner, Starks and Karolyi (2020), ESG is considered as a risk premium. On the other hand, others present the opportunity offered by sustainable investments as a return enhancing strategy. The idea of doing great by doing good is thus advanced by the portfolio investing in sustainable companies. In fact, as explained by the ESG & sustainable investment strategist of Degroof Petercam, the focus depends on the type of portfolio. Indeed, financial market players using ESG will generally consider the ESG risk, that is, assessing how the companies behave with regards to sustainability. Then, portfolios investing in companies offering products and services that contribute to sustainability tend to look for the opportunities linked to sustainability (e.g., renewable energies) in addition to the ESG risk.

> *"For us, this is also a risk mitigant, it is a factor that reduces the risk for us, for our investment." (Investment analyst, investment bank1, Translated from appendix 7)*

> *"The so-called responsible portfolios will mainly target the risk part. Sustainable portfolios, as I said, there is this aspect of opportunity that comes above the risk as well. So obviously it is necessary that in terms of ESG risk, we rule out the worst. But that is not enough. We still need this opportunity so it's more a question of strategy profile." (ESG & sustainable investment strategist, Degroof Petercam, translated from appendix 5)*

However, this financial argument is not described by the professionals as a miracle solution to improve the risk adjusted return. Rather, they explain that it provides a moderate improvement

that outweighs its potential cost, which confirms that ESG does not imply any trade-off with financial performance (Utz et al., 2015) but rather allows for a better risk-adjusted return (Consolandi et al., 2020).

> *"And it appears that there is indeed a way to improve the risk-return couple or in any case, we will say, not to degrade it. And the message we are trying to convey is not: do not invest in a responsible way hoping to do a lot better for a lot less risk, but rather that there is probably one or the other reason to think that you will do a little better in terms of return for the same level of risk or that you will make the same return for a little bit lower risk level because the business is a little bit resilient. But so, we say there is a financial argument, but it is light, do not expect to do three times more, three times better by investing in a responsible way" (Economic advisor & co-founder, Orcadia, Translated from appendix 4)*

My interviews also revealed that in order to support these marketing arguments, financial institutions often participate to sustainable initiatives such as the "Principles for responsible investment" or the labelling of their funds by third parties. Those labels and initiatives are considered by the financial market players as essential to authenticate the involvement in sustainable investment.

> *"This [labelling] is a next step if we want to confirm or affirm that we are making sustainable investments as an asset manager." (Head of investment solutions & fund selection, BelfiusIP, Translated from appendix 3)*

> *"The labels that we participate in are sort of what you call "keurmerk" in Dutch, so a ratification of what you are doing. Oftentimes, what we find is that a lot of these labels are not as strict as we ourselves are. So, setting the bar quite low so that everybody can participate but I look at them as a hygiene factor. It's something that you need to have in order to be able to distribute your funds and be present in certain markets. There is a variety of platforms and networks that we are of course part of the UNPRI, the GIN global investing network, PCAV, those types of initiatives and they are more focused on creating a standard for the industry. I think being a pure impact investor, that's what we want to be a part of as well."* (Thematic fund manager, Triodos, appendix 11)

Furthermore, some interviewees mentioned that the labels and other initiatives, such as the PRI, also provide guidelines and a framework to determine what can be considered as ESG or not. As such, they provide a third-party approved taxonomy of sustainable investment. Hence, before the European union launched a legislation to harmonize responsible investment, the standardization trend of the ESG practices was already happening among the asset managers. As explained by a fund manager, those labels allow the financial institutions to benefit from the investment constraints that they impose on themselves.

> *"It allowed us to formalize a lot of things that we did on the right and on the left, but with little formalism and little process." (ESG & sustainable investment strategist, Degroof Petercam, translated from appendix 5)*

> *"In the end, if we did not do this [labelling], we would impose constraints on ourselves without being able to market them and highlight them, which on the one hand, we would have the constraints, but we would not have the benefits of these constraints." (Junior fund manager, Belfius IP, translated from appendix 3)*

Nevertheless, the labels and other sustainable investment initiatives (e.g., PRI) are not without criticisms. The gap between the theory and the practice was the main element pointed out during the interviews that I conducted, which echoes the literature (Kotsantonis et al., 2016). On the one hand, the engagement ambitions of the PRI are considered by some to be too optimistic. Indeed, as explained by an interviewee, it seems too idealistic to engage with arm or tobacco companies in order to redirect those companies to offer other products on other markets that are considered more sustainable. Rather, the interviewee stated that it would be best not to allow the investment in such companies. On the other hand, the workability of some labels is debated. While some labels are sometimes considered as too strict due to their strong requirements in terms of ESG data, others are considered as too loose by companies that have stronger ESG policies than the labels. Here, the interviews revealed that deciding the degree of strictness of the label implies a trade-off between the accessibility of the label (i.e., the fact that at least some institutions could be eligible to obtain the label and be able to provide all the required data) and the credibility of the label (i.e., the fact that not strict enough criteria reduce the credibility of the label and thus reduces the financial institutions' willingness to be part of it).

> *"So actually, I'll be very frank the PRI I don't believe it too much. [...] But in fact in terms of societal impact, I think that there is a form of hypocrisy that I would not like to have to say to myself that I am going to be a shareholder of an arms company in order to be able to influence the way in which the company works." (Economic advisor & co-founder, Orcadia, translated from appendix 4)*

In conclusion, the discussion with professionals helped me to identify the two main categories of motives for the integration of ESG: non-financial and financial motives. For the non-financial motives, I translated the common motives that apply for any innovation to the adoption of ESG. Using the normative, coercive and mimetic motives, I could identify two common profiles: pro-active players driven by normative motives and reactive players with mimetic or coercive motive. On the other hand, for financial motives, differing views exist on whether the benefits happen on the risk side or on the opportunity side but they all rely on the same assumption: some ESG information is material to the financial valuation of companies, that is, ESG affects their ability to create value over the short, medium and long-term (Eccles & Krzus, 2014; IIRC, 2013, p. 5). The interviews thus confirmed the motives established by the literature. Nevertheless, the discussion depicted that the financial motives advanced by the financial institutions differed based on the goal of each financial products that they sell. For instance, while some consider ESG to align with their values and to benefit from its opportunities with sustainable funds, others consider ESG because they are nudged by their clients, the regulations or the industry trends and consider ESG mainly for the potential risk and threat that its omission could represent. Therefore, no type of motives (financial or non-financial) appeared as dominant on the other.

Finally, financial institutions market their portfolios that integrate ESG by using a combination of ethical and financial arguments which are sometimes different than their internal reasons to integrate ESG. The marketing of those products is also often supported by a label.

In the next section, I will develop how those motives are translated into the investment processes of the financial market players. I will explain that the diversity of motives for ESG is also reflected on how ESG information is considered by companies.

5.2. The use of ESG information in the investment processes

ESG information is commonly used by investors in their investment process. Nevertheless, no consensus exists on how to consider this new layer of information in the investment process. In

fact, most institutions have developed their own way to consider the information. Also, the ESG strategy applied will often vary based on the type of fund, sustainable funds having the strictest strategies. As explained by one of the interviewees, the consideration of ESG does not erase the old valuation techniques but is added on top of those valuation techniques. Moreover, ESG is considered at multiple steps and in a multitude of way by the financial institutions, which is in line with Schramade (2016) who identified use of ESG data in the three steps of the investment making decisions: the idea generation/screening phase, the stock analysis and valuation and finally the investment decision.

> *"What is quite complicated regarding ESG is that it is not something that comes for example at this time in an investment process and that's it. It happens in a lot of different places. [...] ESG is much more, it must be part of mentalities, it encompasses a lot more things, it is also a little vaguer." (Investment analyst, investment bank1, Translated from appendix 7)*

Regarding the investment process, all the institutions that I interviewed **start by defining an investable universe** (i.e., a pool of companies from where they can pick companies to construct their portfolio) based on ESG criteria. This universe is often defined by negative screening approach, that is, excluding some controversial sector such as tobacco or arms for example or excluding companies that do not pass some ESG thresholds. Such criteria and thresholds for the exclusions are sometimes defined internally. Others follow benchmarks and replicate the exclusion criteria from renowned institutions such as the MSCI index, the Norwegian sovereign wealth fund or high-level controversies defined by Sustainalytics and the blacklist of Financité (i.e. a Belgian NGO). The goal of those filters is thus to exclude highly controversial and risky industries and companies.

> *"It's not that I have a definitive view on nuclear power, it's that I align myself behind MSCI which says that these are controversial activities and if it is controversial, I abstain, which is an attitude of caution that seems fairly easy to defend." (Economic advisor & co-founder, Orcadia, translated from appendix 4)*

Interestingly, many of the financial market players use a combination of those various filters to obtain a more robust definition of a responsible universe. To support this argument, the co-founder of Orcadia used the example of potential conflict of interests between the ESG rating

agency and the assessed company to demonstrate that crosschecking of the sources could prevent unexpected surprises. Although he acknowledges that the ESG ratings from different agencies often lead to different results, the gap between the rating is often low and is thus tolerated. Only large differences ring a bell for further caution and analysis.

Next to the negative screening, a less common approach followed by some companies and for some specific products consists of applying positive screening filters. This process starts the other way around than negative screening. Indeed, positive screening aims at defining a universe of stock falling under one or multiple themes considered as positive sustainable themes. Such themes mainly target the E and the S components such as climate change funds, social impact funds, diversity funds, circularity,… In such approach, the goal is to seize the opportunity of sustainable investment rather hedging against the ESG risk, by investing in one (thematic screening) or all the sustainable themes (positive screening). Nevertheless, this reversed approach is often complemented by a negative screening on the subsequent positively screened universe. The goal of this two-step approach is to avoid, for example, that a company has activities contributing positively to a theme but also being involved in other more negative/controversial activities.

> *"So, this is really the difference between a portfolio that is responsible where we have integrated the risk. [...] And then the sustainable portfolio where we really want to finance solutions for the challenges of tomorrow." (ESG & sustainable investment strategist, Degroof Petercam, translated from appendix 5)*

> *"These are standards that we have set ourselves in order to be strict so the themes we've set ourselves, the minimum standards we've set ourselves. So, if we then have a company that contributes positively to one of the seven themes and does not violate the minimum standards, we start analyzing the company with more granularity and what we call integrated analysis." (Thematic fund manager, Triodos, appendix 11)*

Once an investable universe has been defined, diverse ESG pathways can be taken by the fund managers. First, they can decide to freely invest in this universe even if some ESG risks remain, as described by the ESG & sustainable investment strategist of Degroof Petercam.

> *"So, he [the fund manager] obviously has investment constraints, which can range from few constraints on ESG issues and therefore says: "yes, I am aware that there is an ESG risk which is very strong but, at the same time, I find that there is a risk premium worth it, I get paid for that risk as I will be for currency or cash risk and I invest." Either he considers that well no it's a big risk that is not remunerated and he will not invest." (ESG & sustainable investment strategist, Degroof Petercam, translated from appendix 5)*

As described by this quote, asset managers with no specific ESG mandate will only consider the trade-off between the ESG risk and the benefits of investing in that company.

The **second ESG pathway** consists of further refining the investable universe by picking the best-in class in each industry. That is, reducing the investment universe to the top 50%, 20%, 10%... performers in terms of ESG in each industry. Those best-in-class sub-universes are determined based on ratings, often from leading data providers.

Finally, the **last approach** consists of integrating ESG data into the financial valuation of the companies. As developed in the literature review, both absolute and relative approaches are used by professionals to value stocks. Yet, none of the interviewed institutions use ESG in their relative valuation. This result echoes the absence of literature on ESG use in relative valuation.

> *"But it's true that we don't measure, for example, how many basis points on the earnings per share the climate risk, the lack of water will have, so we don't do that. So yes, multiple factors are looked at more on the purely fundamental financial aspects." (ESG & sustainable investment strategist, Degroof Petercam, translated from appendix 5)*

As explained by the following quote, one of the reasons for not integrating ESG in relative valuation is the fact that ESG is hardly comparable at an aggregated level since companies will differ in their performance on the subdimensions of ESG.

> *"Well, yes but it's more to assess relative performance, it's not really something that we think. If you compare the sustainability of one company to another company, it gets, let's say, biased saying that: "Ok so they're all doing bad but then this one is doing a little bit better." So, we always try to look at it more of an absolute standpoint, more on a company per company basis." (ESG analyst, Triodos, appendix 10)*

Regarding the integration of ESG in the absolute valuation of companies, various institutions apply this method during their investment processes. This approach is radically different from the screening approaches as explained by an ESG analyst at Triodos:

> *"[...]Some companies they only look at, you know, best-in-class which would be looking at the score of a company and then saying: ok, the one that has a high score on a certain list, we would choose that company. But we really look at what the company actually does, which is of course a difference." (ESG analyst, Triodos, appendix 10)*

> *"And then we assess material sustainability factors, and you find those in company materiality matrices for instance. How do they affect those value drivers going forward? [...] We look at the company's behavior and how that influences company value." (Thematic fund manager, Triodos, appendix 11)*

The head of ESG at Groupe Bruxelles Lambert explained that the integration of the ESG factors in the absolute valuation allows for more accurate forecasts and a more backed analysis. Indeed, since ESG is considered as value relevant, the valuation is supported by more information and therefore provides more consistent estimates and better stock price informativeness, which is in line with literature (Moneva & Cuellar, 2009; Schiehll & Kolahgar, 2020).

As developed in the literature, ESG integration consists of evaluating the potential impact of ESG on 4 value drivers: revenue growth, margin development, invested capital needed and risk (represented by the discounting factor/cost of capital) (Schramade, 2016).
The interviews confirmed that ESG was integrated in those exact drivers. Yet, when it comes to which driver is the most impacted, heterogenous practices exist. Some argue that ESG integration mainly happens at the cost of capital level due to the impact of environmental issues and climate change on the assets and capex while others integrate the information on a case-by-case basis, according to the industry and the materiality.

However, the definition of materiality is not always straightforward. In fact, the definition of financial materiality is a process that involves judgement and subjectivity (Eccles & Krzus, 2014). Nevertheless, common materiality issues for industries have been defined by SASB, which provides a list of material issues for each industry. This tool has been mentionned multiple times during the interviews as a basis for materiality definition. Relying on SASB

allows financial market players to know what are the key topics in each sector, without even being familiar with the industry. Moreover, as declared by the head of ESG at GBL, today's amount of ESG data can create a lot of confusion for people not familiar with the industry. Focussing on the key issues and the key metrics is thus essential to better integrate ESG data.

Once the material topics have been determined, the difficulty lies in the translation of the material issues into potential impact on financial value drivers. Since ESG financial materiality is a firm-specific topic (Eccles & Krzus, 2014), analysts need to accurately and adequately translate materiality into the financial drivers for each firm. The translation methodology is partly defined internally while the remaining is left to the appreciation of the analysts. For instance, some methodologies use ESG ratings as part of the assessment of the cost of capital of the company while others leave the opportunity to the analysts to use various ESG topics rather than a score. In this later case, the value given is based on estimates from the analysts about the potential impact and the likelihood of the ESG issues on the financial drivers.

> *"And I would say that it's really from there, to go back to all of these different criteria that you find in SASB and then ask yourself: this is the criterion, how can it be translated from a point of financial view? [...] If you want to do ESG integration correctly, sometimes you have to know how to take a step back from these data and ask yourself questions that are common sense." (Head of ESG, Groupe Bruxelles Lambert, translated from appendix 6)*

> *"Usually, we pick five topics that we find to be most materials for this company and then give a value. [...]So, we look at how they drive four different factors: revenues, invested capital, margins and costs of capital. Of course, this is not a hard science, but this is really trying to determine how sustainability is driving the financial value of this company." (ESG analyst, Triodos, appendix 10)*

As demonstrated by those quotes, no standard practice exists when it comes to the integration of material issues into financial drivers. As explained by the head of ESG at GBL, it rather requires a sound business thinking and experience. Throughout my interviews, the subjectivity of the consideration of ESG has been often put forward by various interviewees. These results confirm that the translation of multidimensional ESG information into financial drivers

involves judgment and is determined based on experience, personal preferences and the definition of sustainability (Bender et al., 2018).

This subjectivity seems to happen at two different levels: at the company level with its definition of sustainability and ESG practices and at the personal level with the values, experience of the professionals. Both levels simultaneously influence the way ESG is integrated and translated into financial drivers.

First, the company's definition of sustainability are the guidelines set for sustainable investment that employees need to follow. There, companies can either define their very own definitions and practices or rely on international and national guidelines or standards for sustainable investment. In that later case, companies do not directly control what they will consider as sustainable or not. As explained by Orcadia's cofounder:

> *"With of course a downside that it is the ethics of MSCI [...] What weight has been given to the rights of non-human living beings? There are some who will say it's marginal, there are some who will say it's important. So, we know very well that by contacting MSCI, we subscribe to the methodology of another and not our own. But it's still a certain ethic." (Economic advisor & co-founder, Orcadia, translated from appendix 4).*

Regarding the personal definition of sustainability, experience and values influence the way analysts integrate material information into the financial drivers. Moreover, it turns out that the personal values and feelings on a company can prevent the asset/fund managers to invest in that company, even if the analyzed company is considered sustainable according to the financial institution's definition of sustainability. Consequently, the accordance of the investment decision with the personal opinion of the fund manager on the company is the final ESG consideration during the investment process.

> *"[...]Sometimes I do not agree [...] So, even if it will be super green and super high score, I will never put any money in there. But I think that it's also a link with the values of the fund manager, the ESG and also the level of expertise. It's a combination so this is why it's very variable. [...] If some company is approved but you feel like there is still something wrong, I mean, it's a personal decision. And I think that happens all around the globe. If you have a fund manager that has lost his mother because of, I don't know, lung cancer, then he hates tobacco. Even if they have a proven approval of the tobacco,*

> *it's something personal." (Thematic portfolio manager, Sustainable asset management company, appendix 9)*

> *"So, where you can standardize, you should. And otherwise, investing to a large extent is just as much art as it is science, I would say. [...] I think that there are lots of differing views among the people that work at Triodos as to what is sustainability or what is impact but at some point, you have to say that ok this is the investment philosophy, this is what we believe in and then, even there, there is room to interpret, and I think that's a good thing. It's a human business, we are not robots and so I'm perfectly ok with that." (Thematic fund manager, Triodos, appendix 11)*

Based on my interviews, two main areas seem more prone to subjectivity. First, one thematic fund manager said that in general, social information is more qualitative and less straightforward that environmental information. As developed during the interviews, social criteria such as well-being, equality,… are more complicated to measure which is thus more difficult to define thresholds to determine what is sustainable and what is not.

Secondly, information regarding controversies is often determined more freely by the financial market players. Although data providers such as Sustainalytics determine controversies level, controversies generally need to be estimated by the analysts. For instance, as explained by the Head of investment solutions & fund selection of BelfiusIP, defining if one sector is more controversial than another during the exclusion process (negative screening) is also subjective.

> *"So, there are a few names like that, a bit emblematic, a little known to the general public, that we will try to avoid. [...] That is to say that there are companies which manage to pass through the filters and which nevertheless do not please us and we allow ourselves not to do so." (Economic advisor & co-founder, Orcadia, translated from appendix 4)*

Financial institutions try to mitigate this personal bias by offering trainings to the analysts and asset managers in order to limit the divergences within the company and align all the employees on the company's subjectivity and definition of materiality. Yet, some interviewees also argued that trainings are not enough, and that experience is also crucial to understand ESG's nuances.

> *"No, I think it's mostly a question of financial education. On the one hand, because in everything that is sustainable and responsible investment, we are still often in gray. Black and white is still something quite rare." (ESG & sustainable investment strategist, Degroof Petercam, translated from appendix 5)*

> *"Yes, I think part of the ESG is that it's very subjective and of course I think a problem in the industry is that it's something new that even analysts didn't study sustainability, they are not so knowledgeable and all of a sudden they have to analyze and assess the ESG." (Thematic portfolio manager, Sustainable asset management company, appendix 9)*

Overall, as a Thematic fund manager of Triodos reminds us, any company valuation is subjective, even without considering ESG data. Indeed, the models are based on cash flow forecasts that are as subjective as the impact of ESG on those cash flows.

> *"It's a combination, right? If, first of all, if you don't look at sustainability and start projecting cash flows and revenues and margins of a company, it's subjective as well. Because we are going to say in 2021, 2022, 2023, this and that will happen. So that's completely subjective with, well, our insights. If we then look at how sustainability plays in, you can for instance imagine a company with a sustainable product will probably grow faster than the sector average." (Thematic fund manager, Triodos, appendix 11)*

Finally, ESG is also considered for **portfolio restructuration**, which contradicts the literature (Van Duuren & al., 2016). Indeed, some interviewees mentioned selling stocks if some ESG thresholds are crossed or if new ESG strategies or policies do not allow them to hold the stock. For instance, a thematic fund manager at Triodos mentioned that his fund had to sell a position since the salary ratio between the CEO and the salary of factory workers was too high compared to the threshold that Triodos had set internally. Hence, ESG is now used both for portfolio construction and restructuration.

> *"So, every month we receive the update and if there is something that is now excluded, you need to act. We have one month or two, maximum, to get rid of those positions. And as I said also sometimes you can have new exclusions, you know, like maybe before they were not exclusion but then, all of a sudden, for the whole company, they decided that:*

> *ok now the company is no longer investing in x and then again you have to get rid of those positions." (Thematic portfolio manager, Sustainable asset management company, appendix 9)*

Regarding the use of **ESG for bonds**, the interviewees mentioned having some type of integration which mainly covers the ESG risk of the assessed bond. Actually, debts are subject to liquidity risks rather than return risks, which explains why the focus is on the risk side. For instance, as mentioned by one of the interviewees, strong ESG performance can result in lower interest rates due to decreased risks. For bonds, the ESG consideration can consist of following a best-in-class approach using ratings from data providers. Another way to integrate ESG is part of the analysis. There, the analysts follow a defined approach for ESG integration in order to assess the main material risks. One particularity of the debt side is the possibility to issue green bonds (i.e., debt that is specifically related to a sustainable investment). There, the companies must report in a commonly defined and detail way, according to the guidelines from the EU. Similar to the thematic funds, such bond therefore aims at seizing the opportunities of sustainability rather than incorporating the ESG risk.

> *"It depends in a sense that yes, it's a core part of the analysis but there could be some specific debt emission that are specifically related to ESG and some which are not. Of course, in the ones that are not, the ESG is part of the analysis but has a certain weight instead when we emit, I don't know, green bonds for example, of course the ESG part has an extremely important topic."(Investment analyst, Investment bank 2, appendix 8)*

To conclude, the interviews revealed that ESG investment strategies are combined in various ways by the financial market players and multiple ESG strategies are used. Very limited studies have developed those multiple layers of ESG strategies and the associated pathways. Figure 4 represents the various possible pathways of ESG strategies used by asset management firms. Both pathways mentioned during the interviews and supposed pathways are depicted.

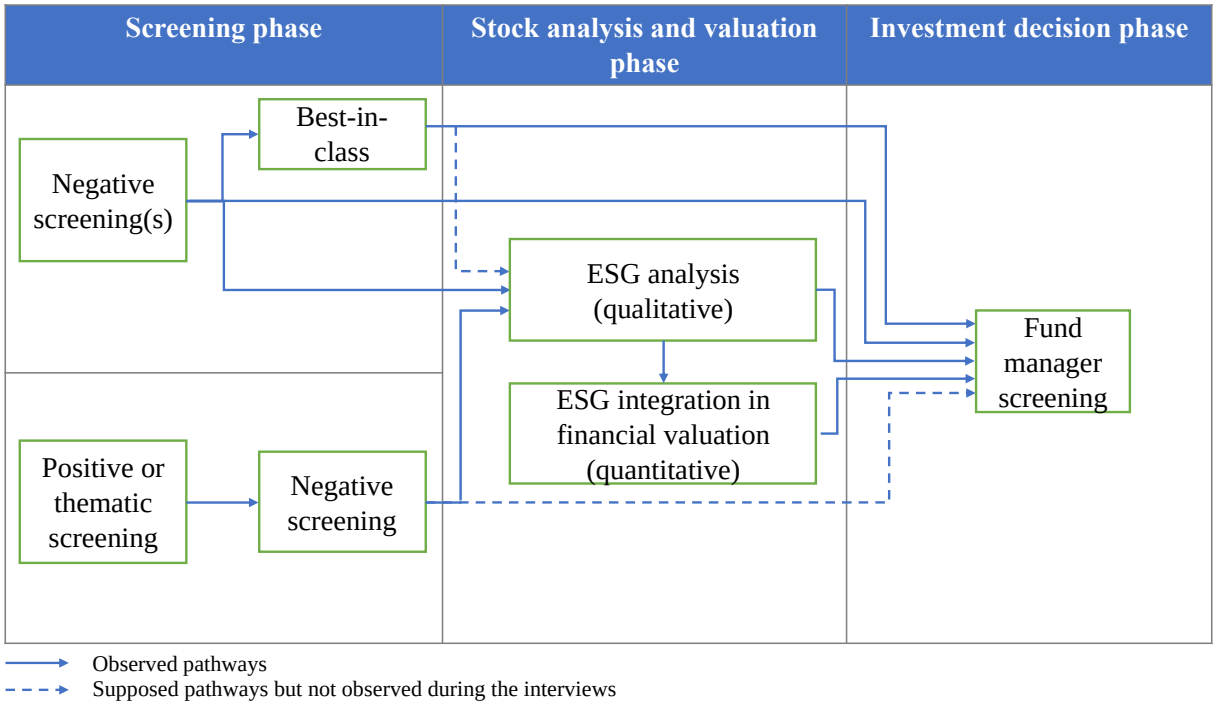

Figure 4: ESG strategies pathways during the 3 steps of the investment process

As the Head of ESG of Groupe Bruxelles Lambert describes, the different strategies provide tools to the asset managers to reach their goal, be it sustainable, financial or both.

> *"And this is where we actually have a toolbox, the toolbox of integration tools. It can be best-in-class, it can be exclusionary approaches, it can be integration, it depends on the investment horizon, it depends on the portfolio turnover rate, it depends on the capacity of those close to management, it depends on the data that are available, etc ... But I would say that there is no miracle recipe for all of this." (Head of ESG, Groupe Bruxelles Lambert, translated from appendix 6)*

In addition, the interviews depicted an important personal and organizational influence in this process. This phenomenon highlights that although a general sense of sustainability and materiality is shared by the financial market participants, the exact boundaries of sustainability and materiality are organizational and personal.

In the next section, I will develop how the different uses of ESG determine the information needed by investors and the desired format of this information.

5.3. Content and Format of the ESG information used by investors

Regarding the **content** used by the financial market players, there are two ways to look at ESG, as explained by a thematic fund manager. First, there are the products and services offered by the companies that aim at solving an environmental or social problem. For instance, companies offering solar panels or offering solutions to decrease poverty. Such information is thus essential for industry screening. Secondly, ESG is also about how the company behaves with regards to its environment, to people and to governance while delivering its products and services. Those two dimensions are essential for financial market players since a company could offer sustainable products such as solar panels but employ children to manufacture them. Similarly, a firm could behave well in terms of ESG but could offer arms or tobacco as products.

While assessing products or services' contribution to sustainability is quite straightforward, more information is needed by the analysts to properly assess how the company behaves while delivering its products or services. One of the most regarded dimensions in this second ESG axis is governance. Governance is perceived as a hygiene factor, since it reflects management quality (van Duuren et al., 2016). Indeed, proper governance decreases major risks such as accounting frauds but also sets the bar for business ethics within a company, therefore signaling better consideration for environmental and social realms. As developed during the interviews, this proper governance should be reflected by proper internal management and auditing with an adequate board.

> *"Yes, I always say ESG starts with G and proper governance will lead to good decisions on the E and the S fronts. That's a necessary requirement to run your business properly." (Thematic fund manager, Triodos, appendix 11)*

Then, environmental and social realms are assessed by the analysts. There, the topics are less straightforward. As the head of ESG at Groupe Bruxelles Lambert describes it, today there are two types of ESG content: the essential content, which is common for all market participants and the idiosyncratic content, which is specific to the company and based on its own materiality.

> *"The first component is like figure skating, you have the imposed figures then the free figures. Before moving on to the free figures, you have to do the imposed. The imposed are climate change and diversity. Today, whether you like it or not, even if you are in an area that is not very exposed, you must have a view on it. [...] And behind, in freestyle*

> *figures, this is where automatically depending on the sector of activity, all the relevant SASB ratios pop up and therefore the company is analyzed in terms of positioning compared to its competitors on its ratios there, on SASB metrics." (Head of ESG, Groupe Bruxelles Lambert, translated from appendix 6)*

Therefore, the content of the information reported by companies should cover both essential topics that are material for every companies (governance, climate change and diversity) and material topics that are specific to the company, which is in line with recent surveys (TCFD, 2020). This materiality is also expected to be reflected in the risks disclosed by the companies.

For each of these topics, financial market participants want to see how controversies are managed and avoided. In fact, some interviewees consider controversies as normal for businesses. What really matters for them is the severity degree of these controversies and how companies handle them to avoid an increase in severity. Indeed, most of the negative impact of the controversies is expected to happen when the severity degree is high.

Moreover, the content reported by companies should evolve over time. Actually, materiality and controversies are not carved in stone, as a thematic fund manager puts it:

> *"It has been evolving you know, through time. Maybe in the beginning, I don't know, maybe alcohol wasn't that bad but then through time it has evolved and then now maybe it's something that is becoming more and more relevant. Or, I don't know, for coal maybe the threshold was larger and now it's coming down up to the point that maybe it's completely excluded. So, I think it's evolving you cannot say that the exclusions today were the same that the exclusions 20 years ago or 10 years ago." (Thematic portfolio manager, Sustainable asset management company, appendix 9)*

Then, my interviews confirmed that the content disclosed by companies does not always match professional investors' expectations. First of all, one interviewee mentioned that the social theme is often lagging behind compared to the other ESG topics. One of the reasons advanced for this is the difficulty to quantify such topics and to define proper targets. Moreover, it seems that there is less consensus around what can be considered socially sustainable or not, while environmental sustainability has well defined metrics and thresholds.

Besides, financial market players expressed the need for hard data to complement the disclosed policies. Indeed, the interviewees called for tangible results and clear metrics and KPIs. Some argued that quantitative metrics allowed them to properly and more objectively assess the ESG performance of a company compared to qualitative descriptions that often aim at showing companies under their best light. Indeed, quantitative data seems easier than to analyze since it allows comparability with peer companies and thresholds set by the financial institutions.

> *"I think it's a matter of how you quantify the qualitative things." (Thematic portfolio manager, Sustainable asset management company, appendix 9)*

> *"There is one thing that happens quite often in the field of ESG, we say when you start to look at ESG and ESG data, it's a bias that is quite traditional: the data is very often oriented on policies: are the policies in place? Are the systems in place? Are there KPIs? etc .. And behind we still have trouble, I would say, to make sense of the raw figures by saying ok: do x tons of carbon per denominator that you want make sense?" (Head of ESG, Groupe Bruxelles Lambert, translated from appendix 6)*

However, as showed by the previous quote, hard data is often insufficient for the professionals. Thus, this data should also be supported by a detailed description of the meaning of these metrics as well as a strategy that explains how to reach the targets. Therefore, both quantitative data about current performance and goals as well as qualitative data that details how to reach those goals are needed by investors.

> *"So, what we want is really to understand what is behind the numbers. How are they going to get there. So, translate what is behind and, I am not saying that we do not always have the information, but if, for example, we only do non-financial reports, as is requested today, we will not have all this qualitative behind." (ESG & sustainable investment strategist, Degroof Petercam, translated from appendix 5)*

> *"So those are all measurable things and that's relatively easy, but a good sustainability analysis goes beyond that [quantitative data]." (Thematic fund manager, Triodos, appendix 11)*

This need for a strategy is supported by the fact that, today, lack of data is not the main issue around ESG. Rather, relevance and quality of this data are much more problematic. The value of ESG is therefore about how the data is interpreted and translated into the financial drivers.

> *"And today you have 400,000 pieces of data that are available, so there is ESG data. But do you manage to do something with it? I will potentially say yes, if you understand how your investment process reacts and how you manage to extract or add information that adds positive value to your process without creating biases that could potentially impact, I would say, the global organization of your alpha generation." (Head of ESG, Groupe Bruxelles Lambert, translated from appendix 6)*

This quote supports the idea that financial market players are trying to achieve outperformance by selecting data that impact financial value and that others might not consider (In et al., 2019).

Regarding the preferred information sources of professionals, three main sources of information have been mentioned during the interviews: sustainability reports, third party data providers and direct engagement with companies.

First, **sustainability reports** are often a secondary source of information. Indeed, financial market players do not always see sustainability reports positively and sometimes even worthless. According to the institutions that I interviewed, sustainability reports are either used systematically, on a case-by-case basis in case of doubt on the about some topics or sometimes are not used at all.

The usual reasons mentioned during the interviews to limit or avoid the use of sustainability reports were the reports' tendency to be biased toward positive information, their limited information on some key controversies and lack of comparability with other companies' reports. For these reasons, no single institution that I interviewed solely relies on the sustainability report. Rather they use different complementary sources. As an example, when it comes to hard quantitative data, the analysts prefer using third party data providers because the information is already in a data base and can be retrieved automatically while data in sustainability reports must be retrieved manually, which strongly support the need for machine readable data (European Commision, 2020).

> *"Yes, I mean it's always good to be critical about the source because the source is the company itself, so they're always going to state how amazing they're doing and how great they are. So, I mean, based on experience looking at a lot of these reports, of course you get a feeling of what is greenwashing and what is not. That there is a clear issue with standardization of these reports" (ESG analyst, Triodos, appendix 10)*

> *"So, that's not the heart of the work because it still requires a lot of efforts." (Head of investment solutions & fund selection, BelfiusIP, translated from appendix 3)*

Nevertheless, the publication of sustainability reports is still seen positively since it forces companies to further improve and disclose.

> *"Having to find content in an extra-financial report, well that means that you have to go find the content you need, make it evolve because you can't talk for five years or for ten years to publish the same thing or publish the fact that we do not do much. So, at some point you also have to try to make things evolve and so that pushes the company as a whole to try to be more transparent, to be more creative in relation to what it wants to disclose." (Head of investment solutions & fund selection, BelfiusIP, translated from appendix 3)*

Regarding the type of reports favored by the analysts, they seem to look for frameworks disclosing material content in a structured way. Hence, reporting in line with SDGs is perceived of limited value for them since it has very limited link with materiality. Similarly, the GRI framework seems to not provide sufficient financial material data since the report is targeted at multiple stakeholders and disclose information not needed by the investors, resulting in a too broad definition of the materiality by the company (D'Aquila, 2018).

> *« And in this continuum, I would say different reporting or potential frameworks at the beginning the weakest, where there is no link in materiality, it is typically a reporting on the United Nation Sustainable development goals. Everybody's going to say, ok I'm going to do SDG here, I'm going to do SDG there. It's beautiful greenwashing and honestly it goes no further. After you go to a GRI level, you are still far from materiality for me. It is starting to improve but it is not yet there. There is one who is at this level too and whether it likes it or not, and I think they would not like me to say that, that is*

> *the initiative launched by the World Economic Forum, the United Nations and the auditors, but above all the World Economic Forum and the auditors, to have an integrated reporting standard which roughly takes everyone in mind. You want to say, the moment you take everyone a bit I'm sorry, but you take no one. And in fact, you especially do not take the financial analysts because there, the work has already been done. And when you quit those frameworks that are really voluntary frameworks, you get into a much more investor approach, an accounting approach. This is where you have the SASB frameworks or the frameworks that are issued by FASB or IASE in the United States on more technical things. And today it is really I would say in terms of quality reporting, it is really where we are heading»* (Head of ESG, Groupe Bruxelles Lambert, translated from appendix 6)

Nevertheless, less consensus exists when it comes to the value of integrated reports. While some argue that it does not provide sufficient material and investor-specific content, others mention that it allows for a better understanding of material ESG content.

> *« I don't think you can see them separately so I very much embrace integrated reporting because a lot of the stuff that we call non-financial data, in fact, should be called not yet financial data. And I think that's an important thing that people miss. A lot of things that are maybe not yet financial now but are very material and sustainable, will impact the way the numbers work for your business" (Thematic fund manager, Triodos, appendix 11)*

Overall, SASB seems to be largely embraced by the analysts for the integration in financial valuation. Hence, the publication of sustainability reports under SASB would improve the value of the reports for the financial market players.

Regarding the **reporting assurance**, professionals find them valuable but would rather see a validation of the data disclosed rather than the validation of the process of the disclosure. Hence, professionals would like to have an assurance on the data disclosed similar to accounting audits for further reliability, which is line with recent surveys (McKinsey, 2019).

> *"For the moment, we are certifying the processes, we are not certifying the data, it is really different. So, you are going to certify that the pipe that went from A to B is not*

> *pierced but you have not certified that what went into the pipe at A was good, hoping that what will come out at B will be of the same quality." (Head of ESG, Groupe Bruxelles Lambert, translated from appendix 6)*

Regarding the **tools** used by the professionals, all the interviewed institutions use some types of standardization, aggregation and automation of the information processing. This automation brings resource savings for data processing.

> *"Everything that we can automate and facilitate, we obviously do, but there is still a part that is not possible." (ESG & sustainable investment strategist, Degroof Petercam, translated from appendix 5)*

As part of this automation, artificial intelligence is expected to provide superior ESG data insights and might thus revolutionize the way that the information is considered by the financial institutions. Today, only one third party data provider (true value labs) uses artificial intelligence to scan news about companies.

> *"Artificial intelligence will revolutionize ESG research and the quality of information that comes from the ESG field. This is an extremely strong personal conviction. [...] Today we have the capacity to go and find a lot more data than companies want to understand, and I would say that this is really the future of ESG research in terms of having an information hedge that allows us to have an impact." (Head of ESG, Groupe Bruxelles Lambert, translated from appendix 6)*

There are two types of tools that professionals use to process data: third-party tools and in-house data processing software.

First, in-house data processing software are automation tools that asset management firms use to create a proprietary ESG rating that can then be used during the screening, the valuation or can provide alarms and red flags on certain topics. Those ESG tools usually combine information from various third-party databases and manual inputs typed by the analysts based on the sustainability reports. Hence, in those cases institutions develop ESG ratings and reports that match their needs and preferences according to their own methodology.

> *"We have an ESG section where we must fill in, so it's an excel in which we fill in a whole series of information and taking into account the sector and all the answers that we put, that automatically calculates an ESG profile which must be relatively positive. [...] I think it is at least partly based on international standards." (Investment analyst, investment bank1, Translated from appendix 7)*

Yet very few companies that I interviewed have their own proprietary data processing software. Rather, most financial institutions rely on third-party ESG data providers. The third parties offer detailed ESG analysis of most large and listed companies at a low-cost compared to in-house research. Third-party tools also facilitate the comparison and the benchmarking between companies. Some of the interviewed institutions even combine information from different providers because that not all providers focus on the same content. While some providers such as MSCI, ISS,… offer general ESG overviews, analysis and ratings, other companies provide information and analysis on specific topics. For instance, Sustainalytics offers assessment of companies' risks and controversies. True value Labs uses artificial intelligence to scan news about the company and to assess if the news is positive or negative. Other third parties provide detailed information on specific topics, such as climate change. Usually, the interviews revealed that such thematic data providers are more consulted as a complement to other sources in case of concerns about a specific topic for the target company. Finally, other experts are sometimes consulted on an ad hoc basis for further analysis on specific topics.

Nevertheless, relying on external data providers is not without disadvantages. Indeed, unlike in-house developed tools, relying on third-party data providers means subscribing to their methodology. Then, some interviewees mentioned that those methodologies are often subject to change, leading to confusions about the real methodology.

> *"So, we know very well that by contacting MSCI, we subscribe to the methodology of another and not our own. But it's still a certain ethic and voila." (Economic advisor & co-founder, Orcadia, translated from appendix 4)*

As a result, data and ratings from different providers sometimes lead to contradicting results. This lack of alignment is due to the different methodologies employed by the third parties (Bender et al., 2018; Berg et al., 2019; Diebecker et al., 2018; Dorfleitner et al., 2015; Douglas et al., 2017; SustainAbility, 2019). Notwithstanding, the industry is currently undergoing a

consolidation that will probably decrease those divergences. While this trend is seen positively by some, others highlight the fact that sustainability and responsible investment remains subjective and that diversity in the methodologies is a good thing in order to match investors' heterogenous preferences.

> *"On the other hand, you are seeing all the big guys buying each other, so Morningstar acquires Sustainalytics, Factset acquires True Value Labs and you see this mega consolidation. And what I think the industry needs is standardization. It shouldn't be the case that if I run my portfolio through the analysis of three different data providers, I get three different outcomes. I would love to see those outcomes be very close to one another and not all over the place. So, I guess that's something that the industry has to work on." (Thematic fund manager, Triodos, appendix 11)*

Moreover, relying solely on ratings seems to be insufficient, according to the interviewees. Two main critics have been mentioned during the interviews. First, the fact that ratings are backward looking because they assess previous performance metrics rather than informing on the ESG strategy and future performance with regards to sustainability, which is the same issue than looking solely at past financial performance to assess the future financial performance of a company.

> *"So, the first step in terms of ESG integration, often what people do, they take ESG ratings, and they say to themselves: it's not working. It's normal, an ESG rating, it's driving a car while looking at the mirror, while thinking the road is straight. For the moment the road remains straight, the day there is a curve, you haven't seen it." (Head of ESG, Groupe Bruxelles Lambert, translated from appendix 6)*

> *« So, they build you a portfolio and put a little ESG sauce over it and I think the other thing is sustainability is more than just a high rating. Ratings measure the quality of reporting, ratings are backward-looking, and I think a lot of people focus on the outcome of the process, i.e., a high ranking or a high rating or what not, but not so much on the input of the process. And I think the inputs are probably more important than the output. The output is the result, but the inputs are important. [...] So if we decide right now that the most sustainable portfolio is the portfolio with the highest Sustainalytics ranking, we can write the computer program and go to the Bahamas. But if we decide that, actually, a portfolio has to make sense and the sustainability ranking of that portfolio is just an outcome but not THE outcome, then it becomes a whole*

different game and I think the game that should be played." (Thematic fund manager, Triodos, appendix 11)

Then, ratings tend to be biased towards large companies, because as explained by an ESG analyst, they have better reporting capabilities, more policies in place and a lot of people working on the reporting and on obtaining a high score. Hence, ESG data from third-party providers seem to favor larger companies.

The last source of information that companies use is **direct interaction with companies**. Indeed, most interviewees mentioned that they directly ask to the companies when some ESG data is missing. This practice emphasizes the importance of ESG data for the financial market players. In fact, some interviewees mentioned that the lack of certain key ESG data would be perceived as negative and could refrain portfolio manager from investing in that company.

"If we don't get enough information about our minimum standards, we really go and ask the company. So that's that's really something we do which makes our research process very slow sometimes." (ESG analyst, Triodos, appendix 10)

Moreover, engagement with companies is also a way for professionals to challenge the ESG data and policies directly.

"But we also have a lot that is done in live dialogue in fact. For example, for all carbon issues, we like to challenge companies on "ok we have found the data, aim for reductions as much, at that time, etc.", but we do not have the details on how they will arrive at -20% emissions by 2030. And that's what interests us more, how they plan to get there. Are they going to sell activities that are too polluting? Are they going to acquire new activities? Are they going to optimize their production processes? All this allows us to understand also at the financial level what will be the impact to achieve this kind of ambition. So, we still do a lot a lot by ultimately the questions that we can have with the management directly." (ESG & sustainable investment strategist, Degroof Petercam, translated from appendix 5)

Engagement practices were particularly predominant for institutions with very few positions such as holdings and investment banks. First, since holdings and investment banks aim at becoming a key shareholder of the target company, their engagement level is stronger with that

company. Not only they want the most granular information possible, but they also aim at steering the ESG practices of the companies in which they invest. However, investment banks or private equities often work with non-listed companies who disclose less information, and no third-party providers cover those firms. Internal research and information obtained directly from engaging with the company are thus the only available sources in those cases.

> *"Normally what we do is we always ask to the company because since we are working together, we suppose they are being transparent with us."(Investment analyst, Investment bank 2, appendix 6)*

Another key difference between asset management firms and investment banks is the type of the data available. Indeed, since non-listed companies have less disclosure requirements for ESG, they do not always have all the desired metrics in place. Rather, the analysts must deal with more qualitative information to assess the ESG practices of such companies.

When it comes to **bonds**, the content will be directed towards ESG risks and the assets exposure to these risks. Hence, the materiality is different in those cases. Finally, green bonds (i.e., bonds with a proceed specifically related to a sustainable investment) have specific ESG disclosure requirements during the period of the bond, mainly on the sustainable impact of the investment.

Overall, my interviews demonstrated that financial market players want material ESG content with quantitative data, targets and strategies about to reach those targets. Regarding the format of the information and sources used, most institutions combine various sources for accuracy and to make sure that all potential risks are covered. The interviews confirmed that sustainability reports are not the preferred source of ESG information of investors since it is often biased and non-standardized between the companies. Rather, the reports are sometimes used only to clarify uncertainties. Third-party ESG data providers therefore usually constitute a key source for professionals due to its detailed, standardized and automated information that allows comparability and ease of integration in financial models. Yet, ESG ratings from those providers are often considered as limited and more information is needed by investors. Finally, direct engagement is commonly used since analysts do not always find all the necessary data.

5.4. Factors influencing the use of ESG information

In this last section, I investigate the factors that influence the ESG strategies as well as the content and sources considered as part of the investment process of financial market players. To assess those drivers and barriers, I followed Friede (2019) categorization of the major levels of influence of ESG integration: firm level, market level, individual level and regulatory level.

First, regarding **firm level**, resources availability compared to the portfolio size seems to be the predominant factor. Indeed, selecting key material data and understanding its impact on the financial value is a resource consuming process (time, knowledge and human resources) and financial institutions are constrained by their resources (van Duuren et al., 2016). The use of ESG thus implies a tradeoff between performing deeper analysis to generate financial outperformance and limiting the cost of conducting such research (In et al., 2019).

To understand the impact of resource availability on financial market players, I interviewed a broad sample of financial institutions from small and highly resources-constrained institutions to a holding investing in very few companies and not really constrained in terms of resources. My interviews confirmed the theory proposed by In, Monk and Rook (2019) stating that the need for information varies according to investor's goals (i.e., motivation) and means (i.e., resources). Moreover, the interviews results were in line with Grewal, Hauptmann and Serafeim (2020) who demonstrated that investors with smaller portfolios and/or more ESG analysts (and thus resources availability compared to the portfolio size) will further integrate the ESG information in the financial valuations. As suggested by In, Monk & Rook (2019), the resources availability seems to directly affect the depth (i.e., the volume) and the width (i.e., the diversity of sources) of the ESG data considered by the institutions.

For instance, smaller companies and companies with large portfolios seem to rely more on third-party ESG data and research providers rather than doing it in-house.

> *"So here I'm not going to tell you that it's stupid to do it internally, we had no choice but to do it externally. That being said, I prefer to call on MSCI which has 200 full-time employees on it rather than doing it badly on the fly with 5, 10 or even 20 analysts." (Economic advisor & co-founder, Orcadia, translated from appendix 4)*

On the other hand, holdings like Groupe Bruxelles Lambert who have a very small portfolio or companies who decided to allocate more resources to in-house ESG research have more capabilities to perform extensive ESG analysis of the companies that they are targeting. They thus rely less on third party ESG data providers and tend to carry out deeper analysis to obtain an informational edge that others don't have and to thus generate an alpha (In et al., 2019)

> *"So definitely our investment process is slow because of this, but also we are not really willing to change that because it's really found very valuable." (ESG analyst, Triodos, appendix 10)*

Hence, resources seem to be a key factor determining the information considered and the sources used by the professionals. As stated by In, Monk & Rook (2019), less constrained firms seem to access better data quality. This data quality means that the obtained information is more reliable, more granular, fresher (e.g., ratings are updated only a few times a year), more complete, more actionable and scarcer (i.e., the institution therefore has a competitive edge).

Regarding the **personal level**, personal values and expertise as well as company's vision of sustainability are three elements that influence the professionals involved in the investment process. As described earlier, subjectivity plays an important role in the overall decision-making process. Financial institutions often try to limit the internal discrepancies by offering trainings to align the employees on common standards. By doing so, the firms control at least partially the subjectivity part of the analysis to insure consistency between the analysis.

For analysts, subjectivity plays an important role during the analysis of companies, in terms of the definition of materiality and the translation of ESG data into financial value drivers. For fund manager, it might refrain them from investing in the targeted company, even though the analysts gave a positive assessment.

Regarding **market level** factors, two influencing factors have been developed during the interviews: Global trends (using the example of Covid) and the state of ESG data.

First, literature does not seem to align on the impact of crisis on the consideration for ESG information. Indeed, while Coram, Mock and Monroe (2011) argue that financial crises lead to lower consideration for non-financial information, Carnevale and Mazzuca (2014) argue that

more weight is given to ESG information in times of uncertainty and crisis. Accidentally, my research has been conducted while the covid-19 pandemic was spreading. This health crisis also morphed into a social and financial crisis. Moreover, it is unclear if high ESG ratings had any influence on stock performance during the Covid-19 pandemic (Albuquerque et al., 2020; Berg et al., 2020; Demers et al., 2021). To better understand the reasons for this lack of consensus, I therefore discussed during my interviews the impact of the pandemic on the consideration of ESG data by financial institutions.

Most of the interviewees pointed out the fact that the crisis has aroused interest in sustainable investment and has contributed to the acceleration of the sustainable investment trend, therefore supporting the argument of Carnevale & Mazzuca (2014). The interviewees also mentioned that the pandemic affected neither the ESG strategy, nor the methodology used for ESG. Rather, some interviewees mentioned the fact that covid-19 highlighted some ESG aspects in the spotlight such as inequalities or biodiversity. For instance, more focus has been given on how the employees were treated during the crisis. Hence, global trends have the potential to alter the materiality of firms and thus the ESG content used by the financial markets.

> *"And so, I think that the Covid only reinforces the importance that we will give to these questions of inequality, these social questions, these environmental questions and therefore I believe that there is also a dimension with the Covid, taken awareness of the importance of quality of life. All of this done, I think the responsible investment message today is even more easily heard than it was a few years ago. (Economic advisor & co-founder, Orcadia, translated from appendix 4)*

> *"Well, I think it has for a lot of people, it made us all very aware that biodiversity is important, it made us all very aware of the big inequalities. So, half of the world is nicely working from home and half of the world still has to go to the factory or drive the bus or what not. So yes, it does [affect the consideration of ESG data] and during the pandemic when we talk to companies we also spoke to companies: how are you dealing with your workers? And how are you making sure that they stay healthy? How are you making sure that they keep getting paid, don't lose their jobs? Obviously, if this goes on forever there will be cost cutting and there will be layoffs because people have to reshape the business but in the short term. We also looked at how does a company treat its resources." (Thematic fund manager, Triodos, appendix 11)*

Thus, the crisis associated to Covid-19 has slightly affected the materiality of companies, with a stronger focus given on some material topics related to the pandemic. As explained earlier, materiality is constantly changing for companies who thus regularly need to address new material topics. The global pandemic is thus a clear example of this constant change of materiality. Since they are backward looking, ratings could not foresee this change in materiality. This could potentially explain why high ratings prior the pandemic could not lead to outperformance during the pandemic, while ratings that have adapted their methodology during the pandemic have led to outperformance (Berg et al., 2020).

The second market-level factor influencing the used ESG content and sources is the state of the data. Indeed, the data is sometimes of poor quality, not reliable or sometimes even missing.

> *"The main barrier, I think, it's quality of data, availability of data and reliability of data. I think it's a big market, it's a big opportunity, lots of companies are seeing that more and more data are needed." (Thematic fund manager, Triodos, appendix 11)*

Regarding availability, professionals do not always find the desired information to correctly assess the company's performance and practices. For instance, as explained by an ESG analyst, firms seem to lack reporting outside of their scope such as upstream or downstream their supply chain. This challenge is often predominant for large companies as their supply chain is more complex than smaller ones. On the other hand, smaller or non-listed companies also often lack the measuring and reporting capacities to properly report all the desired information.

> *"No, we don't always have the info. We try to have it but as you said, like private companies sometimes here when it is companies of 50-100 people, there are not always procedures in place to calculate all that. So, sometimes we don't have the quantitative information so sometimes it's rather qualitative." (Investment analyst, investment bank1, Translated from appendix 7)*

Regarding quality, the lack of data homogeneity and reporting standardization is pointed out as a barrier to a proper data integration, especially for data published in sustainability reports. Therefore, as explained before, data standardization by third party providers is perceived as valuable by the professionals although the quality of their aggregation is pointed out by a

thematic fund manager. The lack of standardization thus influences the sources used by analysts.

> *"Yes, I think that's a quality issue rather than anything else and a consistency issue. But let's just say that not every data provider is great in combining thousands and millions and yens and euros and make it all add up in a logical manner." (Thematic fund manager, Triodos, appendix 11)*

The last level influencing the consideration of ESG is the **regulatory level**. My interviews demonstrated that the recent European regulations are affecting the way information is taken into account by professional investors. For instance, the EU taxonomy determines which firm can be considered as sustainable or not. This new definition aligns the professionals on a common understanding of what is responsible investment. Hence, the regulations partially determine the content to consider as well as the ESG strategies of those who want to be taxonomy compliant. My interviews showed that the publication of the taxonomy is welcomed by the professionals. Indeed, most of them perceive it as necessary and useful, since its binding. An argument stated during the interviews was the fact that it aligns European stock markets on common standards. In a sense, the taxonomy takes over national labels, which facilitates funds comparison.

> *« At the European level, I think that, from my point of view, it is a very good thing that harmonization is being put in place because national laws are a little scattered, France has its own approach, Belgium has its own approach, and this is more complicated in an investment market which is inherently very global." (Junior fund manager, Belfius IP, translated from appendix 3)*

Nevertheless, some criticisms emanate from the professionals who argue that more improvement is needed from the regulation side.

First, financial market players pointed out to the cost of this taxonomy. Indeed, while most of them acknowledge its benefits, they also acknowledge the extra reporting burden that it represents for the companies and for the financial market players.

Then, some criticisms exist about the determinism of the taxonomy on the definition of sustainable investing. Professionals want some freedom and flexibility to determine their own vision of sustainability.

> *"Europe seeks to prevent people from claiming to be responsible or sustainable when they are not, which is fine. But I wouldn't want us to go into a world in which I am determined what I can and cannot do. [...] There must be regulations and we must hope for stronger regulations both in what is obligatory and in what is prohibited. But on the other hand, you have to leave some latitude. So, an European regulation will be very bad for all this in-between, this latitude." (Economic advisor & co-founder, Orcadia, translated from appendix 4)*

An ESG & sustainable investment strategist at Degroof Petercam also mentioned that the uniformized definition of sustainability by the taxonomy is pushing all the investors towards the same type of assets, which could thus potentially result in a financial bubble of green assets. Indeed, due to the large amount of assets under sustainable portfolios, the reduction of the investable universe that can be considered as sustainable will nudge institutional investors towards the same companies, potentially leading to an excessive valuation of these stocks due to an imbalance of the supply and demand compared to the other classes of stocks.

> *"I think a barrier would be that we will all end with the same crowded trades because now everything will be aligned and then maybe we end up with the same portfolios." (Thematic portfolio manager, Sustainable asset management company, appendix 9)*

Moreover, the taxonomy is not perceived as material ESG reporting but rather as a list of hygiene factors for sustainability. Actually, the taxonomy sets thresholds that cannot be crossed in order to be considered as sustainable. However, those thresholds do not allow to understand the potential impact of the different ESG metrics on the financial performance. Hence, it is perceived to neglect the question of materiality as explained by the Head of ESG at Groupe Bruxelles Lambert. Also, many questions already arise in terms of methodology, scope.

> *"I mean it's a good point of departure but as I said there is a lot more to do. For example, the KPIs because it's not enough to say, "ok this is the taxonomy". You have also to say ok how do you measure it correctly and how do you report it correctly. So, it's just the first layer, the taxonomy. But then, there are some layers that in any case you need to put more of a framework on those processes as well." (Thematic portfolio manager, Sustainable asset management company, appendix 9)*

Finally, some professionals mentioned that no consensus exists on certain topics covered by the taxonomy. As explained by the head of investment solutions & fund selection at Belfius IP, sustainability and controversies are also defined based on the culture of the country.

> *« Now we will have to see if we arrive at an European label, are we going to have the same, the same strict side of things? Because we see the labels which are there for the moment are also strongly dependent on the culture of the country and for example also here in Belgium the nuclear power is seen as being something controversial, but it is not necessarily the case in France. Suddenly, there are national influences that are highlighted in each of the labels. We will see how it evolves at the European level. » (Head of investment solutions & fund selection, BelfiusIP, translated from appendix 3)*

This heterogeneity of the definition of sustainable investment is particularly relevant for the social pillar. While the recently released taxonomy solely focuses on environmental matters, a social taxonomy is desired and expected by the professionals. Yet, they stressed the challenges associated with such taxonomy: no consensus exists when it comes to social sustainability. In comparison, environmental topics such as climate change have reached consensus about the targets that can be considered as sustainable. Yet, more debates exist around what can be considered as socially sustainable. Financial market players thus identify the social taxonomy as a key topic for the years to come, especially for firms with global operation in various culture.

> *"Right now, they only have the environmental side worked out and I'm quite interested to see also the social sides, social topics being worked out because I think that's going to be more of a challenge." (ESG analyst, Triodos, appendix 10)*

Overall, the interviews demonstrated that the established ESG integration process is altered by various elements from 4 different levels: the firm level, market level, individual level and regulatory level. My interviews allowed me to investigate new influencing factors, that is, global crises using the Covid-19 example and the European Taxonomy. Moreover, I could establish which steps of the investment process were impacted by the various factors.

Finally, the interviews clarified the ESG integration process in the investment decisions as well as its influences. The insights of my qualitative research allowed me to further refine the proposed model of ESG integration. This improve model is presented in figure 5.

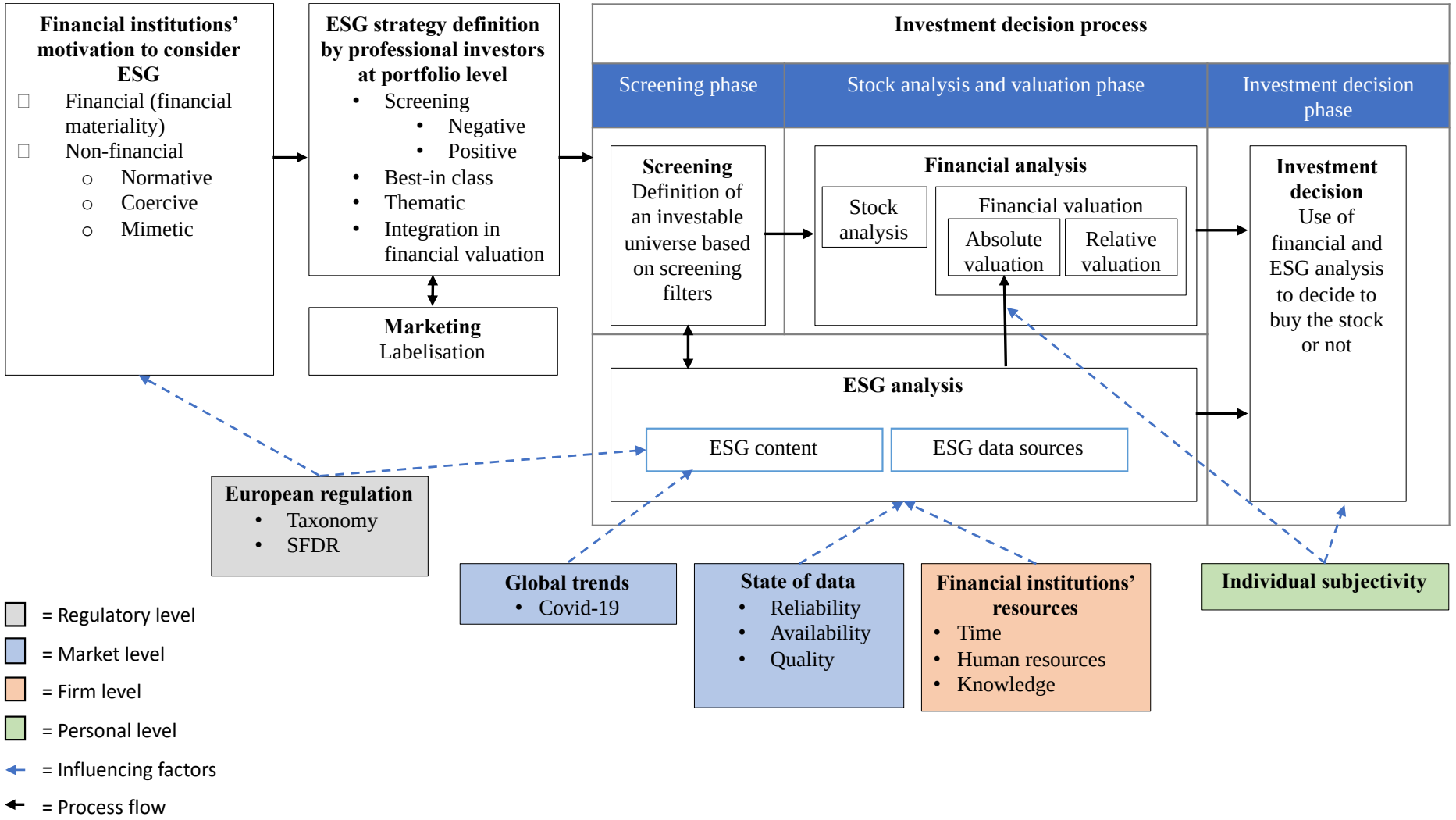

Figure 5: Refined model of ESG integration by financial professionals and its influences

6. Conclusion & limits

This thesis attempts to clarify the use of ESG information by professional asset managers and to increase the understanding of the gap between the information reported by companies and the information needed by institutional investors by answering to the question: *"How is ESG information integrated by professional investors in their investment decisions?"*

To approach this question, I first **reviewed two branches of relevant literature**. The first part took the companies' perspective to review their current ESG information reporting practices. The second part took the perspective of professional investors to better understand their motivations to use ESG information, the strategies of ESG integration that are implemented, the content and sources used to support their analysis and finally the factors influencing the integration of ESG information in the investment processes.

To complement this literature and attempt to improve the understating of the use of ESG information by the financial world, I **conducted 9 interviews** with professional analysts and asset managers. The interviews brought clear insights about the use of ESG by those professionals and helped me to represent this process and its influences.

Based on the interviews, this thesis brings new insights on the ESG integration process.
First, I **clarify the motivations** of professional investors to integrate ESG by suggesting that in addition to financial motivations, non-financial motivations are normative (proactive), coercive (reactive) and mimetic (reactive) motivations. Then, I describe that financial institutions often label their funds to validate their responsible investment practices by third parties. Hence, labels allow professionals to market more easily their sustainable products. This reliance on external parties shows the lack of standard definition of sustainable investment. Hopefully, the EU taxonomy is expected to fulfill this role by aligning investors on a common definition of sustainability thresholds.
Furthermore, I found that **ESG strategies** are combined in a lot of different ways by professionals, resulting in various ESG strategy pathways. For instance, the screening phase is usually performed with various filters to guarantee a more robust approach. So far, the literature focused on the ESG strategies as separate elements and did not investigate the possible combinations of the strategies. Therefore, the proposed ESG pathways in this thesis offer a novel element to the literature. As part of those strategies, the most advanced way to integrate ESG is to use it directly into financial valuations of companies. While I uncovered that ESG is

not used for relative valuations, its use in absolute valuations is a common practice for financial institutions. My research also clarifies the content and format needed by professional investors, namely machine-readable, material and forward-looking data.

Finally, this thesis contributes to understanding the factors that influence the use of ESG in investment practices. More particularly, **four levels of influence** have been investigated: firm level, market level, personal level and regulatory level. For firm level, resources availability is a key element determining the content and sources used during the analysis. As an example, a large resources availability allows institutions to perform in-house ESG analysis according to their own methodology while resource constrained firms will rather rely on third-party data providers. For personal level, I confirmed the prevalence of subjectivity in the ESG analysis. More precisely, it primarily happens during the translation of the impact of ESG information into impact on financial drivers, as part of the financial valuation. Surprisingly, I also uncovered that fund managers apply their own ESG screening based on their values and experience before investing in a company. The screening is done once the financial and ESG analysis have already been performed. This last step of the ESG integration process has been so far absent from literature. Regarding market level, I found that global trends, such as the Covid-19 pandemic, have influences on the ESG integration process. These events do not alter the ESG strategies but rather the materiality of companies and, as a consequence, the content considered during the ESG analysis.

The fourth level of influence is the regulatory influence, particularly the EU taxonomy and the SFDR. The interviews revealed that these regulations can serve as a trigger to the consideration of ESG information but can also alter the ESG strategies as well as the content used.

Finally, this thesis proposes a **model to represent the ESG integration process** by professional investors. It is composed of three main steps: the financial institutions' motivation to integrate ESG, the ESG strategy defined by the professional investors at the portfolio level and the investment decision process. This last step is subdivided into the screening phase, the stock analysis and financial valuation phase and the investment decision phase. The model is complemented by a mapping of the various influencing factors and their relationships with the ESG integration process.

Managerial implications for companies

My interviews highlighted that sustainability reports are insufficient for professional investors. Three areas of improvement have been emphasized during the interviews: the materiality of the disclosed information, the type of data and the format of data. Regarding materiality, all key material topics that can impact financial performance should be identified by the companies and reported adequately, preferably in accordance with SASB standards. Hence, better transparency about the real ESG risks is asked by the professionals. Then, regarding the type of data, material topics should be supported by quantitative metrics and clear goals on those metrics. Finally, these goals should be complemented by a detailed strategy on how the firms will reach them. Regarding the information format, financial institutions plead for machine readable data that can be easily processed and compared with other firms.

Future research

Future research should try to validate the propositions developed in this thesis. For instance, studies could try to compare the different ESG pathways in terms of impact, performance or robustness. Other studies could examine professionals' subjectivity and the elements that shape this subjectivity. More particularly, the fund manager screening during the investment decision step could be further investigated. Similarly, studying the impact of culture and values on the definition of sustainability by the financial institutions could be valuable, particularly for the social pillar. Lastly, a whole new area of research is opening about the use of artificial intelligence to process ESG data. As developed during the interviews, this field is promising for the use of ESG since it allows deeper and more accurate analysis.

Limitations

This thesis is not without limitations. First, the results presented in this thesis are based on the transcripts of the interviews. Although the interviews have been carefully transcribed word by word, I might have misinterpreted some parts of these interviews. Moreover, the discussion on the influences of the European taxonomy and the Covid-19 have been conducted in the midst of those events. The interviewees and I therefore might not have sufficient hindsight on those events, which could compromise the results. Finally, I interviewed financial institutions located in Belgium, Luxembourg and The Netherlands. This regional proximity might limit the potential of extrapolation of the ESG integration process to other regions.

Bibliography

Albuquerque, R., Koskinen, Y., Yang, S., & Zhang, C. (2020). Resiliency of environmental and social stocks: An analysis of the exogenous COVID-19 market crash. *The Review of Corporate Finance Studies*, *9*(3), 593–621. https://doi.org/10.1093/rcfs/cfaa011

Alessandrini, F., & Jondeau, E. (2020). ESG investing: From sin stocks to smart beta. *The Journal of Portfolio Management*, *46*(3), 75–94. https://doi.org/10.3905/jpm.2020.46.3.075

Amel-Zadeh, A., & Serafeim, G. (2018). Why and how investors use ESG information: Evidence from a global survey. *Financial Analysts Journal*, *74*(3), 87–103. https://doi.org/10.2469/faj.v74.n3.2

AON (2019). *2019 Intangible assets financial statement impact comparison report*.

Arnold, M., Bassen, A., & Frank, R. (2018). Timing effects of corporate social responsibility disclosure: An experimental study with investment professionals. *Journal of Sustainable Finance & Investment*, *8*(1), 45–71. https://doi.org/10.1080/20430795.2017.1368229

Ballou, B., Heitger, D. L., & Landes, C. E. (2006). The future of corporate sustainability reporting: A rapidly growing assurance opportunity. *Journal of Accountancy*, *202*(6), 65.

Beck, C., Dumay, J., & Frost, G. (2017). In pursuit of a 'single source of truth': From threatened legitimacy to integrated reporting. *Journal of Business Ethics*, *141*(1), 191–205. https://doi.org/10.1007/s10551-014-2423-1

Bender, J., Bridges, T., He, C., Lester, A., & Sun, X. (2018). A blueprint for integrating ESG into equity portfolios. *The Journal of Investment Management*, *16*(1).

Berg, F., Fabisik, K., & Sautner, Z. (2020). Rewriting history II: The (un)predictable past of ESG ratings. *SSRN Electronic Journal*. https://doi.org/10.2139/ssrn.3722087

Berg, F., Kölbel, J., & Rigobon, R. (2019). Aggregate confusion: The divergence of ESG ratings. *SSRN Electronic Journal*. https://doi.org/10.2139/ssrn.3438533

Bernstein, L. A. (1967). The concept of materiality. *The Accounting Review*, *42*(1), 86–95.

Bhimani, A., Silvola, H., & Sivabalan, P. (2016). Voluntary corporate social responsibility reporting: A study of early and late reporter motivations and outcomes. *Journal of Management Accounting Research*, *28*(2), 77–101. https://doi.org/10.2308/jmar-51440

Bouslah, K., Kryzanowski, L., & M'Zali, B. (2018). Social performance and firm risk: Impact of the financial crisis. *Journal of Business Ethics*, *149*(3), 643–669. https://doi.org/10.1007/s10551-016-3017-x

Brammer, S., & Pavelin, S. (2008). Factors influencing the quality of corporate environmental disclosure. *Business Strategy and the Environment*, *17*(2), 120–136. https://doi.org/10.1002/bse.506

Bryer, R. A. (1993). The late nineteenth-century revolution in financial reporting: Accounting for the rise of investor or managerial capitalism? *Accounting, Organizations and Society*, *18*(7–8), 649–690. https://doi.org/10.1016/0361-3682(93)90048-B

Business Roundtable. (2019). *Business roundtable redefines the purpose of a corporation to promote 'an economy that serves all americans.* Online. https://www.businessroundtable.org/business-roundtable-redefines-the-purpose-of-a-corporation-to-promote-an-economy-that-serves-all-americans

Carnevale, C., & Mazzuca, M. (2014). Sustainability report and bank valuation: Evidence from European stock markets. *Business Ethics: An European Review*, *23*(1), 69–90. https://doi.org/10.1111/beer.12038

CDP (n.d.). *Reporter services* . Online. https://www.cdp.net/en/companies/reporter-services

CFA institute. (2017). *Environmental, social and governance (ESG) survey*.

Cheng, B., Ioannou, I., & Serafeim, G. (2014). Corporate social responsibility and access to finance: CSR and access to finance. *Strategic Management Journal*, *35*(1), 1–23. https://doi.org/10.1002/smj.2131

Cheng, M. M., Green, W. J., & Ko, J. C. W. (2015). The impact of strategic relevance and assurance of sustainability indicators on investors' decisions. *AUDITING: A Journal of Practice & Theory*, *34*(1), 131–162. https://doi.org/10.2308/ajpt-50738

Clark, G., Feiner, A., & Viehs, M. (2015). *From stockholder to stakeholder*. University of Oxford & Arabesque Partners.

Consolandi, C., Eccles, R. G., & Gabbi, G. (2020). How material is a material issue? Stock returns and the financial relevance and financial intensity of ESG materiality. *Journal of Sustainable Finance & Investment*, 1–24. https://doi.org/10.1080/20430795.2020.1824889

Coram, P. J., Mock, T. J., & Monroe, G. S. (2011). Financial analysts' evaluation of enhanced disclosure of non-financial performance indicators. *The British Accounting Review*, *43*(2), 87–101. https://doi.org/10.1016/j.bar.2011.02.001

Corporate Reporting Dialogue. (2019). *Driving alignment in climate-related reporting year one of the better alignment project*.

D'Aquila, J. M. (2018). The current state of sustainability reporting: A work in progress: certified public accountant. *The CPA Journal*, *88*(7), 44–50. ABI/INFORM Collection.

De, I., & Clayman, M. R. (2015). The benefits of socially responsible investing: An active manager's perspective. *The Journal of Investing*, *24*(4), 49–72. https://doi.org/10.3905/joi.2015.24.4.049

Demers, E., Hendrikse, J., Joos, P., & Lev, B. (2021). ESG did not immunize stocks during the COVID-19 crisis, but investments in intangible assets did. *Journal of Business Finance & Accounting*, *48*(3–4), 433–462. https://doi.org/10.1111/jbfa.12523

Dhaliwal, D., Li, O. Z., Tsang, A., & Yang, Y. G. (2014). Corporate social responsibility disclosure and the cost of equity capital: The roles of stakeholder orientation and financial transparency. *Journal of Accounting and Public Policy*, *33*(4), 328–355. https://doi.org/10.1016/j.jaccpubpol.2014.04.006

Dhaliwal, D. S., Li, O. Z., Tsang, A., & Yang, Y. G. (2011). Voluntary nonfinancial disclosure and the cost of equity capital: The initiation of corporate social responsibility reporting. *The Accounting Review*, *86*(1), 59–100. JSTOR.

Dhaliwal, D. S., Radhakrishnan, S., Tsang, A., & Yang, Y. G. (2012). Nonfinancial disclosure and analyst forecast accuracy: International evidence on corporate social responsibility disclosure. *The Accounting Review*, *87*(3), 723–759. JSTOR.

Diebecker, J., Rose, C., & Sommer, F. (2018). Spoiled for choice: Does the selection of sustainability datasets matter? *SSRN Electronic Journal*. https://doi.org/10.2139/ssrn.3359508

Dienes, D., Sassen, R., & Fischer, J. (2016). What are the drivers of sustainability reporting? A systematic review. *Sustainability Accounting, Management and Policy Journal*, *7*(2), 154–189. https://doi.org/10.1108/SAMPJ-08-2014-0050

Dorfleitner, G., Halbritter, G., & Nguyen, M. (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. https://doi.org/10.1057/jam.2015.31

Douglas, E., Van Holt, T., & Whelan, T. (2017). Responsible investing: Guide to esg data providers and relevant trends. *Journal of Environmental Investing*, *8*(1), 91–114.

Durand, R., Paugam, L., & Stolowy, H. (2019). Do investors actually value sustainability indices? Replication, development, and new evidence on CSR visibility. *Strategic Management Journal*, *40*(9), 1471–1490. https://doi.org/10.1002/smj.3035

Eccles, R. G., & Klimenko, S. (2019). The investor revolution: Shareholders are getting serious about sustainability. *Harvard Business Review, May-June*. https://hbr.org/2019/05/the-investor-revolution

Eccles, R. G., & Krzus, M. P. (2014). *The integrated reporting movement: Meaning, momentum, motives, and materiality.* John Wiley & Sons.

Eccles, R. G., Serafeim, G., & Krzus, M. P. (2011). Market interest in nonfinancial information. *Journal of Applied Corporate Finance*, *23*(4), 113–127. https://doi.org/10.1111/j.1745-6622.2011.00357.x

Elliott, W. B., Jackson, K. E., Peecher, M. E., & White, B. J. (2014). The unintended effect of corporate social responsibility performance on investors' estimates of fundamental value. *The Accounting Review*, *89*(1), 275–302. https://doi.org/10.2308/accr-50577

Erhardt, J. (2020). The search for ESG alpha by means of machine learning—A methodological approach. *SSRN Electronic Journal*. https://doi.org/10.2139/ssrn.3514573

Escrig-Olmedo, E., Fernández-Izquierdo, M., Ferrero-Ferrero, I., Rivera-Lirio, J., & Muñoz-Torres, M. (2019). Rating the raters: Evaluating how ESG rating agencies integrate sustainability principles. *Sustainability*, *11*(3), 915. https://doi.org/10.3390/su11030915

Escrig-Olmedo, E., Rivera-Lirio, J. M., Muñoz-Torres, M. J., & Fernández-Izquierdo, M. Á. (2017). Integrating multiple ESG investors' preferences into sustainable investment: A fuzzy multicriteria methodological approach. *Journal of Cleaner Production*, *162*, 1334–1345. https://doi.org/10.1016/j.jclepro.2017.06.143

EU Technical Expert Group on Sustainable Finance. (2019). *Taxonomy technical report*.

EU Technical Expert Group on Sustainable Finance. (2020). *Taxonomy: Final report of the Technical Expert Group on Sustainable Finance*.

European Commision (2019). *Communication from the commission to the european parliament, the european council, the council, the european economic and social*

committee and the committee of the regions the european green deal (Publication COM/2019/640 final)

European Commision. (2020). *Summary report of the public consultation on the review of the non-financial reporting directive*.

European Parliament (2014). *Directive 2014/95/EU of the European Parliament and of the Council of 22 October 2014 amending Directive 2013/34/EU as regards disclosure of non-financial and diversity information by certain large undertakings and groups*. Official Journal of the European Union. L 330/1, p.1-9.

European Parliament (2019). *Regulation (EU) 2019/2088 of the European Parliament and of the Council of 27 November 2019 on sustainability-related disclosures in the financial services sector*. Official Journal of the European Union. L 317/1, p. 1-16.

Eurosif. (2014). *European SRI study 2014*.

Eurosif. (2018). *European SRI study 2018*.

Fernandez-Feijoo, B., Romero, S., & Ruiz, S. (2014). Effect of stakeholders' pressure on transparency of sustainability reports within the GRI framework. *Journal of Business Ethics*, *122*(1), 53–63. https://doi.org/10.1007/s10551-013-1748-5

Flower, J. (2015). The international integrated reporting council: A story of failure. *Critical Perspectives on Accounting*, *27*, 1–17. https://doi.org/10.1016/j.cpa.2014.07.002

Freeman, R. E., & Reed, D. L. (1983). Stockholders and stakeholders: A new perspective on corporate governance. *California Management Review*, *25*(3), 88–106. https://doi.org/10.2307/41165018

Friede, G. (2019). Why don't we see more action? A metasynthesis of the investor impediments to integrate environmental, social, and governance factors. *Business Strategy and the Environment*, *28*(6), 1260–1282. https://doi.org/10.1002/bse.2346

Galbreath, J. (2013). ESG in focus: The australian evidence. *Journal of Business Ethics*, *118*(3), 529–541. https://doi.org/10.1007/s10551-012-1607-9

Gelb, D. S., & Strawser, J. A. (n.d.). *Corporate social responsibility and financial disclosures: An alternative explanation for increased disclosure*. 13.

Gerwanski, J., Kordsachia, O., & Velte, P. (2019). Determinants of materiality disclosure quality in integrated reporting: Empirical evidence from an international setting. *Business Strategy and the Environment*, *28*(5), 750–770. https://doi.org/10.1002/bse.2278

Gill, P., Stewart, K., Treasure, E., & Chadwick, B. (2008). Methods of data collection in qualitative research: Interviews and focus groups. *British Dental Journal*, *204*(6), 291–295. https://doi.org/10.1038/bdj.2008.192

Global reporting initiative (n.d.). *GRI 101 foundation.* Online. https://www.globalreporting.org/media/55yhvety/gri-101-foundation-2016.pdf - page=10

Global sustainable investment alliance. (2019a). *2018 global sustainable investment review*.

Global sustainable investment alliance. (2019b). *Sustainable investor poll on TCFD implementation*.

Glooner, S. (2017). ESG risks and the cross-section of stock returns. *SSRN Electronic Journal*. https://doi.org/10.2139/ssrn.3004689

Gnanaweera, K. A. K., Kunori, N., & Ntim, C. G. (2018). Corporate sustainability reporting: Linkage of corporate disclosure information and performance indicators. *Cogent Business & Management*, *5*(1), 1423872. https://doi.org/10.1080/23311975.2018.1423872

Grewal, J., Hauptmann, C., & Serafeim, G. (2020). Material sustainability information and stock price informativeness. *Journal of Business Ethics*. https://doi.org/10.1007/s10551-020-04451-2

Grunert, J., Norden, L., & Weber, M. (2002). *The role of non- financial factors on internal credit ratings*. 36.

Guiral, A., Moon, D., Tan, H., & Yu, Y. (2020). What drives investor response to CSR performance reports? *Contemporary Accounting Research*, *37*(1), 101–130. https://doi.org/10.1111/1911-3846.12521

Haji, A. A., Coram, P., & Troshani, I. (2020). Effects of integrating CSR information in financial reports on investors' firm value estimates. *Accounting & Finance*, acfi.12713. https://doi.org/10.1111/acfi.12713

Henisz, W., Koller, T., & Nuttall, R. (2019). *Getting your environmental, social, and governance (ESG) proposition right links to higher value creation. Here's why.* Mckinsey.

Herzig, C., & Schaltegger, S. (2006). Corporate sustainability reporting. An overview. In *Sustainability accounting and reporting*. Springer, Dordrecht., pp. 301–324.

Hodge, K., Subramaniam, N., & Stewart, J. (2009). Assurance of sustainability reports: impact on report users' confidence and perceptions of information credibility. *Australian Accounting Review*, *19*(3), 178–194. https://doi.org/10.1111/j.1835-2561.2009.00056.x

IIRC (2020). *IIRC and SASB announce intent to merge in major step towards simplifying the corporate reporting system*. Online. https://integratedreporting.org/news/iirc-and-sasb-announce-intent-to-merge-in-major-step-towards-simplifying-the-corporate-reporting-system/

IIRC. (2021). *The international <IR> framework*. Online. https://integratedreporting.org/wp-content/uploads/2021/01/InternationalIntegratedReportingFramework.pdf

In, S. Y., Rook, D., & Monk, A. (2019). Integrating alternative data (also known as ESG data) in investment decision making. *Global Economic Review*, *48*(3), 237–260. https://doi.org/10.1080/1226508X.2019.1643059

Ioannou, I., & Serafeim, G. (2015). The impact of corporate social responsibility on investment recommendations: Analysts' perceptions and shifting institutional logics: CSR and investment recommendations. *Strategic Management Journal*, *36*(7), 1053–1081. https://doi.org/10.1002/smj.2268

Jain, A., Jain, P. K., & Rezaee, Z. (2016). Value-relevance of corporate social responsibility: Evidence from short selling. *Journal of Management Accounting Research*, *28*(2), 29–52. https://doi.org/10.2308/jmar-51439

Johnson, J. A. (2019). The influence of performance reporting attributes on managers' capital allocation decisions: An examination of reporting audience and location. *Journal of Financial Reporting*, *4*(1), 117–139. https://doi.org/10.2308/jfir-52430

Junior, R. M., Best, P. J., & Cotter, J. (2014). Sustainability reporting and assurance: A historical analysis on a world-wide phenomenon. *Journal of Business Ethics*, *120*(1), 1–11. https://doi.org/10.1007/s10551-013-1637-y

Kahneman, D. (2011). *Thinking, fast and slow*. Penguin Books.

Kaspereit, T., & Lopatta, K. (2016). The value relevance of SAM's corporate sustainability ranking and GRI sustainability reporting in the European stock markets. *Business Ethics: An European Review*, *25*(1), 1–24.https://doi.org/10.1111/beer.12079

Khan, M., Serafeim, G., & Yoon, A. (2016). Corporate sustainability: First evidence on materiality. *The Accounting Review*, *91*(6), 1697–1724. https://doi.org/10.2308/accr-51383

Khemir, S., Baccouche, C., & Ayadi, S. D. (2019). The influence of ESG information on investment allocation decisions: An experimental study in an emerging country. *Journal*

of Applied Accounting Research, *20*(4), 458–480. https://doi.org/10.1108/JAAR-12-2017-0141

Kim, Y., Li, H., & Li, S. (2014). Corporate social responsibility and stock price crash risk. *Journal of Banking & Finance*, *43*, 1–13. https://doi.org/10.1016/j.jbankfin.2014.02.013

Kolk, A. (2005). Sustainability reporting. *VBA Journal*, *21*(3), 34–42.

Kolk, A. (2008). Sustainability, accountability and corporate governance: Exploring multinationals' reporting practices. *Business Strategy and the Environment*, *17*(1), 1–15. https://doi.org/10.1002/bse.511

Kotsantonis, S., Advisors, K., Pinney, C., & Serafeim, G. (2016). ESG integration in investment management: Myths and realities. *Journal of Applied Corporate Finance*, *28*(2), 9.

KPMG. (2020). *The time has come the KPMG survey of sustainability reporting 2020*.

KPMG Impact. (2020). *Towards net zero: How the world's largest companies report on climate risk and net zero transition*.

Krueger, P., Sautner, Z., & Starks, L. T. (2020). The importance of climate risks for institutional investors. *The Review of Financial Studies*, *33*(3), 1067–1111. https://doi.org/10.1093/rfs/hhz137

Krüger, P. (2015). Corporate goodness and shareholder wealth. *Journal of Financial Economics*, *115*(2), 304–329.https://doi.org/10.1016/j.jfineco.2014.09.008

La Torre, M., Mango, F., Cafaro, A., & Leo, S. (2020). Does the ESG index affect stock return? Evidence from the Eurostoxx50. *Sustainability*, *12*(16), 6387. https://doi.org/10.3390/su12166387

Lee, D. D., & Faff, R. W. (2009). Corporate sustainability performance and idiosyncratic risk: A global perspective. *Financial Review*, *44*(2), 213–237. https://doi.org/10.1111/j.1540-6288.2009.00216.x

Lo, A. W. (2017). *Adaptive markets: Financial evolution at the speed of thought*. Princeton University Press. https://doi.org/10.2307/j.ctvc7778k

Lys, T., Naughton, J. P., & Wang, C. (2015). Signaling through corporate accountability reporting. *Journal of Accounting and Economics*, *60*(1), 56–72. https://doi.org/10.1016/j.jacceco.2015.03.001

Maroun, W. (2020). A conceptual model for understanding corporate social responsibility assurance practice. *Journal of Business Ethics*, *161*(1), 187–209. https://doi.org/10.1007/s10551-018-3909-z

Marrewijk, M. V., Wuisman, I., Cleyn, W. D., Timmers, J., Panapanaan, V., & Linnanen, L. (2004). A phase-wise development approach to business excellence: Towards an innovative, stakeholder-oriented assessment tool for organizational excellence and CSR. *Journal of Business Ethics*, *55*(2), 83–98. https://doi.org/10.1007/s10551-004-2154-9

Mock, T. J., Strohm, C., & Swartz, K. M. (2007). An examination of worldwide assured sustainability reporting. *Australian Accounting Review*, *17*(41), 67–77. https://doi.org/10.1111/j.1835-2561.2007.tb00455.x

Moneva, J. M., & Cuellar, B. (2009). The value relevance of financial and non-financial environmental reporting. *Environmental and Resource Economics*, *44*(3), 441–456. https://doi.org/10.1007/s10640-009-9294-4

Neuendorf, K. A. (2017). *The content analysis guidebook*. SAGE Publications, Inc. https://doi.org/10.4135/9781071802878

Pflugrath, G., Roebuck, P., & Simnett, R. (2011). Impact of assurance and assurer's professional affiliation on financial analysts' assessment of credibility of corporate social responsibility information. *AUDITING: A Journal of Practice & Theory*, *30*(3), 239–254. https://doi.org/10.2308/ajpt-10047

Pollard, J. L., Sherwood, M. W., & Klobus, R. G. (2018). *Establishing ESG as risk premia*. 13.

Project task force on climate-related reporting. (2020). *How to improve climate-related reporting: A summary of good practices from Europe and beyond.* European reporting lab.

PwC. (2016a). *Are we nearly there yet? Private equity and the responsible investment journey*.

PwC. (2016b). *ESG pulse: Investors, corporates, and ESG: Bridging the gap.*

Reimsbach, D., Hahn, R., & Gürtürk, A. (2018). Integrated reporting and assurance of sustainability information: An experimental study on professional investors' information processing. *European Accounting Review*, *27*(3), 559–581. https://doi.org/10.1080/09638180.2016.1273787

Sandberg, J., Juravle, C., Hedesström, T. M., & Hamilton, I. (2009). The heterogeneity of socially responsible investment. *Journal of Business Ethics*, *87*(4), 519–533. https://doi.org/10.1007/s10551-008-9956-0

SASB (n.d.). *Materiality map* . Online. https://www.sasb.org/standards/materiality-map/

Schiehll, E., & Kolahgar, S. (2020). Financial materiality in the informativeness of sustainability reporting. *Business Strategy and the Environment*, bse.2657. https://doi.org/10.1002/bse.2657

Schramade, W. (2016). Integrating ESG into valuation models and investment decisions: The value-driver adjustment approach. *Journal of Sustainable Finance & Investment*, *6*(2), 95–111. https://doi.org/10.1080/20430795.2016.1176425

Searcy, C., & Buslovich, R. (2014). Corporate perspectives on the development and use of sustainability reports. *Journal of Business Ethics*, *121*(2), 149–169. https://doi.org/10.1007/s10551-013-1701-7

Silverman, D. (2000). *Doing qualitative research: A practical guide.* (Sage Publications).

Simnett, R., Vanstraelen, A., & Chua, W. F. (2009). Assurance on sustainability reports: An international comparison. *The Accounting Review*, *84*(3), 937–967. https://doi.org/10.2308/accr.2009.84.3.937

Slack, R., & Tsalavoutas, I. (2018). Integrated reporting decision usefulness: Mainstream equity market views. *Accounting Forum*, *42*(2), 184–198. https://doi.org/10.1016/j.accfor.2018.01.005

Starks, L. T., Venkat, P., & Zhu, Q. (2020). Corporate ESG profiles and investor horizons. *SSRN Electronic Journal*. https://doi.org/10.2139/ssrn.3049943

State Street Global Advisor. (2017). *Performing for the future: ESG's place in investment portfolios. Today and tomorrow.*

Stokes, D., & Bergin, R. (2006). Methodology or "methodolatry"? An evaluation of focus groups and depth interviews. *Qualitative Market Research: An International Journal*, *9*(1), 26–37. https://doi.org/10.1108/13522750610640530

SustainAbility. (2019). *Rate the raters 2019: Expert views on ESG ratings*.

Tamimi, N., & Sebastianelli, R. (2017). Transparency among S&P 500 companies: An analysis of ESG disclosure scores. *Management Decision*, *55*(8), 1660–1680. https://doi.org/10.1108/MD-01-2017-0018

UNGC (n.d.). *What is Global Compact?* Online. https://www.unglobalcompact.org/what-is-gc

Utz, S., Wimmer, M., & Steuer, R. E. (2015). Tri-criterion modeling for constructing more-sustainable mutual funds. *European Journal of Operational Research*, *246*(1), 331–338. https://doi.org/10.1016/j.ejor.2015.04.035

van Duuren, E., Plantinga, A., & Scholtens, B. (2016). ESG integration and the investment management process: Fundamental investing reinvented. *Journal of Business Ethics*, *138*(3), 525–533. https://doi.org/10.1007/s10551-015-2610-8

van Tulder, R. (2018). *Business & the sustainable development goals: A framework for effective corporate involvement.* Rotterdam School of Management, Erasmus University, Rotterdam.

Vishwanathan, P., van Oosterhout, H. (J.), Heugens, P. P. M. A. R., Duran, P., & Essen, M. (2020). Strategic CSR: A concept building meta-Analysis. *Journal of Management Studies*, *57*(2), 314–350. https://doi.org/10.1111/joms.12514

White, A. L. (2005). New wine, new bottles: The rise of non-financial reporting. *Business Brief, Business for Social Responsibility*, 6.

World Business Council for Sustainable Development. (2002). *Sustainable development reporting: Striking the balance*.

World Economic Forum. (2020). *Measuring stakeholder capitalism towards common metrics and consistent reporting of sustainable value creation* [White paper].

Zaccone, M. C., & Pedrini, M. (2020). ESG factor integration into private equity. *Sustainability*, *12*(14), 5725. https://doi.org/10.3390/su12145725

Zhou, S., Simnett, R., & Green, W. (2017). Does integrated reporting matter to the capital market? *Abacus*, *53*(1), 94–132. https://doi.org/10.1111/abac.12104

Appendices

Appendices including the interviews can be found in a separate document, joint to this thesis.

LOUVAIN-LA-NEUVE | BRUXELLES | MONS | TOURNAI | CHARLEROI | NAMUR
Place des Doyens, 1 bte L2.01.01, 1348 Louvain-la-Neuve, Belgique | **www.uclouvain.be/lsm**