



CHAPTER 7

ESG ANALYSIS, VALUATION AND INTEGRATION

There are many approaches to ESG analysis and a multitude of ESG integration tools and techniques available. These methods span from company analysis, asset valuation and portfolio decision-making into stewardship.

ESG analysis methods use various data sources ranging from commercially available databases to primary analytical research.

This chapter gives an overview of common and major techniques, a summary of major ESG research providers and case studies of ESG integration in practice across a range of investment strategies.

Why investors integrate ESG	316
The different approaches to integrating ESG	319
Typical stages of integrated ESG assessment	325
Mutual fund and fund manager ESG assessment	361
Company ESG assessment and ratings	362
Primary and secondary ESG data sources	364
Other uses of ESG and sustainability systems data	365
Fixed income, credit rating agencies and ESG credit scoring	368
Conclusion	373
Appendix 7.1	374
Key facts	380
Self-assessment	382
Further reading	388

CHAPTER 7

ESG ANALYSIS, VALUATION AND INTEGRATION

1 WHY INVESTORS INTEGRATE ESG

7.1.1 Explain the aims and objectives of integrating ESG into a firm's investment process.

An investment firm may have several different aims and objectives for integrating ESG into an investment process. These may include:

- A. meeting requirements under fiduciary duty or regulations;
- B. meeting client and beneficiary demands;
- C. lowering investment risk;
- D. increasing investment returns;
- E. giving investment professionals more tools and techniques to use in analysis;
- F. improving the quality of engagement and stewardship activities; and
- G. lowering reputational risk at a firm level and investment level.

We will look at each of these objectives in the following sections.

The aims may differ depending on the nature of the firm. Some firms are pure asset managers, some are asset owners (such as pension plans) and some have mixed characteristics of being both an asset manager and an asset owner (such as some insurance entities or large endowments that use both in-house asset managers and third-party firms).

A. and B. Meeting requirements under fiduciary duty or regulations; or meeting client and beneficiary demands

A significant number of investment professionals still do not integrate ESG. According to a 2017 CFA Institute global ESG survey, 24% of equity investors, 55% of fixed income investors and between 79% and 92% of alternative asset investors (across private equity, real estate, infrastructure and hedge funds) do not integrate ESG into their processes. More recent studies continue to suggest ESG integration is not universally accepted. The Royal Bank of Canada (RBC) 2020 *Responsible Investment Survey* noted that 25% of respondents and, on a regional basis, 36% of US respondents, did not integrate ESG.¹

However, these investors, or their asset owner clients, may fall under certain country regulations, such as the **EU Shareholder Rights Directive**, or the UK's Department of Work and Pensions' (DWP) regulations or the UK's **Stewardship Code**. In these cases, the regulations or clients may demand a certain level of ESG integration even though the investor may not believe ESG integration enhances return or lowers risk. The aim is to meet minimum regulatory obligations or client demands.

The debate has evolved over the last two decades. Historically, legal questions arose as to whether some aspects of exclusionary strategies (e.g. excluding tobacco companies) were consistent with fiduciary duties (modelled on what a prudent person might do). Today, there are legal and regulatory standards suggesting a failure to integrate aspects of ESG might be inconsistent with fiduciary duties. The **United Nations Environment Programme Finance Initiative (UNEP FI)**, along with legal firm Freshfields and the **United Nations Principles for Responsible Investment (UN PRI)**, examined these questions over the last decade. Their analysis (across jurisdictions) argued that the fiduciary duties of investors require them to:

1. Incorporate environmental, social and governance (ESG) issues into investment analysis and decision-making processes, consistent with their investment time horizons.
2. Encourage high standards of ESG performance in the companies or other entities in which they invest.
3. Understand and incorporate beneficiaries' and savers' sustainability-related preferences, regardless of whether these preferences are financially material.²

As of 2021, regulatory updates include:

- ▶ the EU Shareholder Rights Directive II;
- ▶ the UK Stewardship Code; and
- ▶ guidance from the US Department of Labor (DoL).

Of note, over the past decade, the tone of the US DoL guidance has changed back and forth but regardless, the point of it has been that investors have to take note of regulatory requirements with respect to integrating ESG.

→ See Chapter 6 on the main principles of stewardship codes and standards.

C. and D. Lowering investment risk and increasing investment returns

Many investors seek to integrate ESG into investment processes to better understand and lower investment risk. Some also seek to enhance returns via ESG by seeking higher alpha. Recent surveys suggest that more firms do so to lower the risk rather than enhance returns, but some firms do both.^{1,3,4}

Table 7.1: WHY AND HOW INVESTORS USE ESG INFORMATION: EVIDENCE FROM A GLOBAL SURVEY

Survey responses to the question: Do you consider ESG information when making investment decisions?	All		AUM size			ESG Allocation			Region		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
		Significant difference in proportion vs. rows	Large	Small	Diff. (3)–(4)	High	Low	Diff. (6)–(7)	US	Europe	Diff.
N=419 Yes, because ...	82.1%		85.9%	80.3%		93.2%	75.0%	***	75.2%	84.4%	*
1 ... ESG information is material to investment performance.	63.1%	2–8	60.3%	64.5%		69.3%	58.3%	**	55.7%	64.4%	
2 ... of growing client/stakeholder demand.	33.1%	1, 7–8	54.3%	22.4%	***	35.3%	31.8%		33.0%	39.3%	
3 ... we believe such policy to be effective in bringing about change at firms.	32.6%	1, 7–8	31.9%	32.9%		46.0%	22.4%	***	25.8%	40.7%	**
4 ... it is part of our investment product strategy.	32.6%	1, 7–8	43.1%	27.2%	***	38.7%	28.1%	**	47.4%	30.4%	***
5 ... we see it as an ethical responsibility.	32.6%	1, 7–8	25.0%	36.4%	**	41.3%	26.0%	***	18.6%	40.7%	***
6 ... we anticipate it to become material in the near future.	31.7%	1, 7–8	31.9%	31.6%		34.0%	30.2%		29.9%	37.0%	

Survey responses to the question: Do you consider ESG information when making investment decisions?	All		AUM size			ESG Allocation			Region		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
			Significant difference in proportion vs. rows	Large	Small	Diff. (3)–(4)	High	Low	Diff. (6)–(7)	US	Europe
7 ... of formal client mandates.	25.0%	1–3, 5–6, 8	37.1%	18.9%	***	33.3%	18.8%	***	23.7%	30.4%	
No, because ...	17.9%		14.1%	19.7%		6.8%	25.0%	***	24.8%	15.6%	*
1 ... there is no stakeholder demand for such policy.	26.7%	3–5, 6–8	15.8%	30.4%		9.1%	29.7%	*	21.9%	24.0%	
2 ... we lack access to reliable nonfinancial data.	21.3%	6–7	21.1%	21.4%		9.1%	23.4%		18.8%	32.0%	
3 ... ESG information is not material to investment performance.	13.3%	1, 7	5.3%	16.1%		18.2%	12.5%		21.9%	4.0%	**
4 ... we believe such policy to be ineffective in inducing change at firms.	12.0%	1, 7	15.8%	10.7%		18.2%	10.9%		12.5%	16.0%	
5 ... it would violate our fiduciary duty to our stakeholders.	12.0%	1, 7	5.3%	14.3%		9.1%	12.5%		21.9%	8.0%	
6 ... such information is not material to a diversified investment portfolio.	10.7%	1–2	5.3%	12.5%		9.1%	10.9%		6.3%	16.0%	
7 ... including such information is detrimental to investment performance.	4.0%	1–5, 8	5.3%	3.6%		0.0%	4.7%	*	6.3%	4.0%	
p-value of difference (yes vs. no)	<0.001		<0.001	<0.001		<0.001	<0.001		<0.001	<0.001	

*N = the number of respondents.

Source: *Financial Analysts Journal*.⁴

E. and F. More tools and techniques to use in analysis and improving the quality of engagement and stewardship activities

Judging by ESG surveys undertaken by both academics and investment practitioners, not all firms believe ESG integration leads to better risk-adjusted returns. However, many ESG integration tools, such as scorecards (see **Section 3**), can be used to engage with company management teams and aid stewardship activities. These same tools can also enhance the clarity of a company's business model.

→ Further details on this can be found in Chapter 6.

G. Reputational risk at a firm level

Firms may view ESG integration as necessary to ensure a strong reputation and limit reputational risk with stakeholders. Evidence of varying views in the corporate world can be found in the recent *Business Roundtable statement* (August 2019) signed by 181 CEOs (including major investment banks and asset managers) who committed to lead their companies for the benefit of all stakeholders – customers, employees, suppliers, communities and shareholders.⁵

These CEOs wrote:

“...While each of our individual companies serves its own corporate purpose, we share a fundamental commitment to all of our stakeholders. We commit to:

- *Delivering value to our customers. We will further the tradition of American companies leading the way in meeting or exceeding customer expectations.*
- *Investing in our employees. This starts with compensating them fairly and providing important benefits. It also includes supporting them through training and education that help develop new skills for a rapidly changing world. We foster diversity and inclusion, dignity and respect.*
- *Dealing fairly and ethically with our suppliers. We are dedicated to serving as good partners to the other companies, large and small, that help us meet our missions.*
- *Supporting the communities in which we work. We respect the people in our communities and protect the environment by embracing sustainable practices across our businesses.*
- *Generating long-term value for shareholders, who provide the capital that allows companies to invest, grow and innovate. We are committed to transparency and effective engagement with shareholders.*

Each of our stakeholders is essential. We commit to deliver value to all of them, for the future success of our companies, our communities and our country.”

A core component of consumer brand surveys are attitudes towards sustainability and climates, as well as perceptions over diversity and inclusion. Managing ESG risks and opportunities therefore becomes an important part of managing brand and reputational value.

2 THE DIFFERENT APPROACHES TO INTEGRATING ESG

7.1.2 Describe different approaches of integrating ESG analysis into a firm's investment process.

7.1.3 Describe qualitative approaches to ESG analysis across a range of asset classes.

7.1.4 Describe quantitative approaches to ESG analysis across a range of asset classes.

There are a multitude of approaches to integrating ESG analysis into a firm's investment process. This section provides a summary of these.

It is important to note that ESG analysis can be either **qualitative** or **quantitative**. Similarly, the way it is integrated can also be **purely qualitative** (e.g. opinion on quality of management added to the investment thesis) or **quantified** (e.g. impact on financial models or valuation). There are some techniques that could be considered a hybrid of both techniques, for example, scorecards, where a qualitative judgment is turned into a quantitative score.

These tools and techniques cover different types of strategy (passive, systematic, fundamental, active or activist) and different asset classes. Certain tools tends to be asset class or strategy-specific.

Qualitative ESG analysis

Qualitative ESG analysis is likely to be used in investment processes that are based on company-specific research, fundamental analysis and stock-picking.

- A. Investment teams analyse ESG data to form their opinion on the ability of the firm to manage certain ESG issues.
- B. They combine this opinion with their financial analysis by linking specific aspects of the company's ESG risk management strategy to different value drivers (such as costs, revenues, profits and capital expenditure requirements).
- C. Analysts and portfolio managers then seek to integrate their opinion in a quantified way in their financial models by adjusting assumptions used in the model, such as growth, margins or costs of capital.

Certain qualitative techniques may be more suitable (or weighted differently) for different asset classes. For instance, a judgment on management incentives (a part of G analysis) may have more weight in public equity and private equity, less weight for fixed income investors and be deemed irrelevant for sovereign bond investors.

Quantitative ESG analysis

Quantitative ESG analysis is likely to be used in investment processes that use quant models to identify attractive investment opportunities. In such cases, the ESG data is typically aggregated into an ESG factor (an ESG score), which is added to the quant models. This could be a screen that creates the investment universe, or a quant model used to adjust valuations based on several factors (including ESG).

Quantitative, systematic and thematic approaches to integrated ESG analysis

Quantitative practitioners may assess ESG factors at the research stage typically using a third-party database, or a mix of third-party data or internal proprietary data. This is typically done with large datasets of stocks or bonds, rather than individual company assessment, although some firms will create their own proprietary scores from individual company assessment. The data gathering can be similar to that done by fundamental investors, but tends to be over larger datasets. For instance, a global dataset may contain 2,000 to 4,000 companies with 100 data points per company.

Quantitative factor investors typically integrate ESG factors alongside other factors such as value, size, momentum, growth and volatility. Some of these factors may be from third-party models.

ESG data are included in their investment processes and could result in upward or downward adjustments to the weights of securities, including to zero. For instance, a strong score on an environmental factor might be sought. Systematic approaches can attempt to derive correlations to understand how ESG factors might impact financial performance over time and then weight those ESG factors appropriately. Investors can try to assess relationships in existing ESG third-party scores as well as proprietary scores. Algorithmic approaches use ESG data; for instance, scraped from internet news articles to adjust company or sector weights after parsing the ESG data through rules-based formulae.

→ See Section 6 for more information on data sources.

Passive and index approaches may tilt towards ESG factors chosen by investors. For instance, the Japanese Government Pension Investment Fund (GPIF) has created, with index providers, gender-tilted rules-based indices to invest in. These could be considered rules-based strategies. This shows that asset owners can set certain mandate rules accordingly to integrate ESG across differing strategies, and in line with their own ESG policies and philosophies.

→ This is explored in further detail in Chapter 9.

Thematic funds may assess alignment with priority themes, which may have an ESG nature, e.g. climate, or gender. This may be done with a material opportunity mapping process (see Section 3) or using ESG data to adjust weights accordingly.

Application programming interfaces

Investors use application programming interfaces (APIs) to compile and assess data. APIs are used to more easily access and interface with underlying databases and other datasets.

Companies are more forthcoming with their sustainability practices and financial practitioners are increasingly using APIs as a method to compile and integrate this rapidly growing dataset into their processes. The number of total unique ESG data points captured is on the rise.⁶

Artificial intelligence and algorithms

Much of the ESG data available on companies is unstructured. Artificial intelligence (AI) and machine learning algorithms attempt to bring structure and numerical value to part of that unstructured dataset. Some practitioners:

- ▶ focus on using AI techniques to measure ESG performance tied to measures developed by the **Sustainable Accounting Standards Board (SASB)**;
- ▶ attempt to provide immediate access to scores based on material ESG events as they occur; or
- ▶ focus on intangible ESG factors, such as corporate culture, that may drive company value.

Natural language processing (NLP) and other quantitative techniques are likely to continue to develop over time. NLP is broadly defined as the automatic manipulation of natural language, like speech and text, by software. In particular, investors are interested in how to programme computers to process and analyse large amounts of natural language data related to ESG. The aim is to obtain a computer capable of ‘understanding’ the ESG contents of documents, including the contextual nuances of the language within them. The technology can then accurately extract information and insights contained in the documents as well as categorise and organise the documents themselves.

Highlights between the quantitative approaches and qualitative approaches and terminology confusion

Combining this information can be confusing due to the different meanings investors give to the term ‘quantitative’. As a description of an analytical technique, it tends to be used when a numeric score is assigned. But, it can also be used to describe a whole class of investment strategy that tends to use stock, bond, derivative or other security factor properties as the main basis for investment.

In terms of investment strategies, quantitative (sometimes contracted to ‘quant’) investing can be known as ‘systematic investing’. It can include strategies such as:

- ▶ high-frequency trading;
- ▶ use of algorithms based on news or factors and statistical arbitrage;
- ▶ trend-following;
- ▶ risk parity; or
- ▶ use of beta strategies.

The approach tends to use heavy mathematical modelling, computing power and data analysis potentially including machine and natural language learning processes. Some firms solely use these approaches and some use them to supplement human decision-making.

Typically, computer and mathematical models are built and then back-tested. Where these models use ESG data or information (for instance, through raw data or ratings agencies), this is considered a form of ESG integration. This produces many challenges, as the length of time series for ESG data (usually between 7–15 years depending on the series) is much shorter than for financial data. This typically might be viewed as a quantitative investment form of integrating ESG technique.

→ See Chapter 8 and further sections within this chapter for more on the types of challenges that may arise from ESG integration.

Qualitative forms of analysis typically use human judgment of non-numerical forms of analysis. However, advances in techniques are blurring these traditional boundaries. For instance, machine learning's use of natural language processing and scanning of management commentary from meeting transcripts are using those qualitative words in a quantitative fashion.

→ See Chapter 8 for more on ESG and quantitative investment factors.

Fundamental active strategies, where human judgment is used, tend to use ESG techniques that have both qualitative and quantitative elements to them, but are typically not considered quantitative investment. And similarly, with quantitative investment strategies that use ESG ratings data, that ESG ratings data may be based on qualitative human judgment.

Overall, ESG techniques can be considered quantitative or qualitative, or have elements of both. Investment strategies are typically classified as:

- ▶ quantitative (systematic, algorithmic);
- ▶ fundamental;
- ▶ active;
- ▶ passive; or
- ▶ beta.

Investors interchange the term 'quantitative', but provide different meanings when applied to overall investment strategies and processes as opposed to specific ESG integration techniques.

Tools and elements of ESG analysis

Regardless of the ESG analysis classification as qualitative or quantitative, there are many types of tools used by investors. These tools and elements of ESG analysis may include:

- ▶ **red flag indicators.** Securities with high ESG risk are flagged and investigated further or excluded. For instance, a company which has a board that lacks majority independence may be flagged for deep scrutiny on management incentives or simply be excluded from an investable universe.
- ▶ **company questionnaires and management interviews.** For example, if there is insufficient detail on management aspects, or other material ESG information, the investor may ask the company for specific data. Or the investor may have a prepared list of standard ESG data they ask for. These questionnaires are also used in parallel with regular company meetings, where investors and companies will meet to discuss the most material ESG issues.
- ▶ **checks with outside experts.** For instance, an investor may interview key industry thought leaders or other stakeholders of the company including customers, suppliers or regulators. These may be complemented via interviews, surveys or third-party sourcing, such as the use of expert networks.
- ▶ **watch lists.** These may include securities with high ESG risk added to a watchlist for monitoring, or securities with high ESG opportunities that are put on a watchlist for possible investment. For instance, once ESG risks or opportunities are assessed by an investor, a news or stock price watchlist is created and monitored for stock price entry levels or for change in ESG events. For example, a highly carbon-intense company identified with high E risk might be monitored against changing policies on carbon taxes.
- ▶ **internal ESG research.** This may be based on a variety of techniques and data sources. Proprietary ESG research and analysis is performed and the output can be provided in scores, rankings or reports. The research may be based on a variety of data sources, and proprietary ESG research or scores could be created. Furthermore, research could consist of:
 - » materiality frameworks;
 - » ESG-integrated research notes;
 - » research dashboards;

- » strengths, weaknesses, opportunities and threats (SWOT) analysis with ESG factors;
 - » scenario analysis; and
 - » relative rankings.
- **external ESG research**, where:
- » sell-side, ESG specialists or third-party databases may all be used; and
 - » a materiality framework is created.
- **ESG agenda items at investment committee or Chief Information Officer (CIO) -level meetings**. One technique to ensure consistent integration is to ensure an ESG section as a standing item at committee meetings. This may ensure scrutiny from senior level investors and signal importance to the investment firm.

Elements of ESG integration

The elements of ESG integration include:

- **adjusting forecast financials**, for example revenue, operating cost, asset book value or capital expenditure;
- **adjusting valuation models or multiples**, for instance discount rates, terminal values or ratios;
- **adjusting credit risk and duration**;
- **managing risk**, including exposure limits, scenario analysis, value-at-risk models;
- **ESG factor tilts**;
- **ESG momentum tilts**;
- **strategic asset allocation**, including thematic and ESG objective tilts;
- **tactical asset allocation**; and
- **ESG controversies and positive ESG events**.

This can be summed up by the ESG integration framework shown in **Figure 7.1**.

Figure 7.1: ESG INTEGRATION FRAMEWORK

Source: CFA Institute 2018 in collaboration with Principles for Responsible Investment (PRI).⁷

The ESG integration framework, shown in [Figure 7.1](#), is not meant to illustrate the perfect ESG-integrated investment process. As every firm is unique, the ESG integration techniques of one firm are not necessarily the right techniques for all firms. However, many firms will use a selection of the techniques referenced in the figure.

Firms typically use various tools and techniques to identify material factors. These tools can be qualitative or quantitative, or a mix of both.

Differences between company or business analysis and security analysis

There are two distinctions that many investment practitioners make in fundamental investment analysis:

- ▶ the difference between a company or business assessment; and
- ▶ a security, stock, bond or convertible (or other tradeable construct including derivatives) assessment.

While the differences are often interchanged in ordinary language, many investors give them different meanings. Stocks and bonds can have properties that companies do not, such as stock beta or volatility, which are potentially expressed in different ways.

A company or business assessment typically examines fundamental properties of a business, such as its competitive advantages (or lack of), sometimes described as a business moat (after the popular Warren Buffett Annual Letters). These properties could appear in the company's products or services, suppliers, employees, management, organisational structure, incentives, corporate cultures or its resources (natural, intellectual or innovation). Many of these properties could be considered as under an ESG category. For instance:

- ▶ natural capital as **E**;
- ▶ corporate culture or supplier analysis under **S**; and
- ▶ management structure or incentives under **G**.

A business may have strong aspects of ESG, which lead to an assessment of a strong or competitive advantage, that can then lead to a positive judgment on that business or company.

The statistical properties of a company stock or bond may differ from its fundamental business properties. For instance, beta or stock volatility are properties of a stock, not of a company or business per se. This is important due to the debate amongst investors who use security factors to invest. The debate here is whether these properties are ESG components that are robust quantitative ESG stock or bond factors.

→ See Chapter 8 for more detail on this debate.

This is an important debate because of how an assessment of the strength or weakness of a company or business can then lead to a valuation of its securities.

3 TYPICAL STAGES OF INTEGRATED ESG ASSESSMENT

7.1.5 Identify tangible and intangible material ESG-related factors through both qualitative and quantitative approaches.

Firms and investment teams may not have ESG factors embedded in their philosophy, but still use ESG techniques within investment processes. These can run alongside a financial analysis or have integrated aspects to the analysis. The stages typically are:

- A. a **research** stage;
- B. a **valuation** stage; and
- C. a **portfolio construction** stage, which leads to investment decisions.

Each of these stages is considered in further detail in the following sub-sections.

A. Research and idea generation stage

Gathering information

Practitioners gather financial and ESG information from multiple sources. These will typically be a mix of company reports, third party research and primary research, and the data might be qualitative or quantitative, or both.

For example, qualitative data may include company questionnaires and management interviews, whereas quantitative data might include environmental emissions data.

→ See Section 6 for a detailed discussion of data sources.

Materiality assessments

The research stage typically contains a materiality assessment to identify the ESG issues that are likely to have an impact on the company's financial performance. Materiality is typically measured both in terms of the likelihood and magnitude of impact.

The materiality assessment is considered important as there is evidence that non-material factors do not impact financials, valuations or company **business models**.⁸ It is distinguished from some exclusionary socially responsible investing (SRI) strategies, which may also consider non-material factors, e.g. exclusion of pork-based product companies for certain religious stakeholders, which a typical investor would not deem a material ESG factor.

Investors who primarily see ESG analysis and ESG integration as a way to enhance investment processes are likely to focus on ESG issues they consider financially material, i.e. a factor that they consider is likely to have a financial impact in the future, either positive or negative.

As of 2021, there are ongoing debates on the taxonomy and definitions to be used surrounding ESG and sustainability. For instance, the EU is proposing a taxonomy on sustainability investments.⁹ There are also investors who label their strategies as either being 'ethical' or 'impact'. Such ethical strategies may consider issues that an ESG-integrated investor does not deem as being material.

Tangible versus intangible factors; different forms of capital

A tangible asset (or a hard asset) is a physical asset, whereas an intangible asset is a non-physical one that is difficult or impossible to touch physically.

Table 7.2: EXAMPLES OF TANGIBLE AND INTANGIBLE ASSETS

TANGIBLE ASSETS	INTANGIBLE ASSETS	APPLICABLE TO BOTH TANGIBLE AND INTANGIBLE ASSETS
<ul style="list-style-type: none"> • Land. • Manufacturing plants. • Inventories. • Furniture. • Machinery. 	<ul style="list-style-type: none"> • Goodwill. • Patents. • Copyrights. • Intellectual property and know-how. • Software and innovation assets. • Corporate culture. • Incentives. • Employee productivity. • Other forms of social and relationship assets. 	<ul style="list-style-type: none"> • ESG analysis techniques. • Materiality.

Evaluating different forms of tangible or intangible factors

One framework for evaluating different forms of 'capital' or tangible or intangible factors was developed by the International Integrated Reporting Council (IIRC).

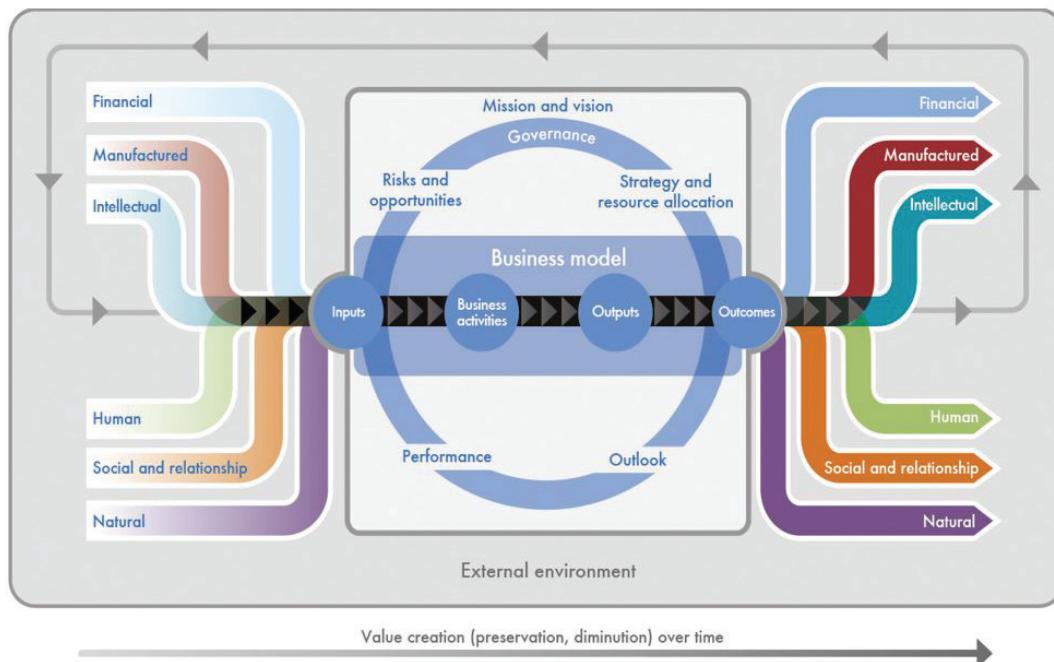
The *IIRC Framework* (to which certain companies report) describes capitals (both intangible and tangible) as follows:

- ▶ **Financial capital** – the pool of funds that is:
 - » available to an organisation for use in the production of goods or the provision of services; and
 - » obtained through financing, such as debt, equity or grants, or generated through operations or investments.

- ▶ **Manufactured capital** – manufactured physical objects (distinct from natural physical objects) that are available to an organisation for use in the production of goods or the provision of services, including:
 - » buildings;
 - » equipment; and
 - » infrastructure (such as roads, ports, bridges, and waste and water treatment plants).
- Manufactured capital is often created by other organisations, but includes assets manufactured by the reporting organisation for sale purposes or when they are retained for their own use.
- ▶ **Intellectual capital** – organisational, knowledge-based intangibles, including:
 - » intellectual property, such as patents, copyrights, software, rights and licences; and
 - » ‘organisational capital’, such as tacit knowledge, systems, procedures and protocols.
 - ▶ **Human capital** – people’s competencies, capabilities and experiences, and their motivations to innovate, including their:
 - » alignment with and support for an organisation’s governance framework, risk management approach, and ethical values;
 - » ability to understand, develop and implement an organisation’s strategy; and
 - » loyalties and motivations for improving processes, goods and services, including their ability to lead, manage and collaborate.
 - ▶ **Social and relationship capital** – the institutions and relationships between communities, groups of stakeholders and other networks, and the ability to share information to enhance individual and collective well-being. These include:
 - » shared norms, and common values and behaviours;
 - » key stakeholder relationships, and the trust and willingness to engage in an organisation that has developed and strives to build and protect with external stakeholders;
 - » intangibles associated with the brand and reputation that an organisation has developed; and
 - » an organisation’s social licence to operate.
 - ▶ **Natural capital** – all renewable and non-renewable environmental resources and processes that provide goods or services that support the past, present or future prosperity of an organisation (see [Chapter 3, Section 5](#) in that chapter in particular). This includes:
 - » air, water, land, minerals and forests; and
 - » biodiversity and eco-system health.

It is clear to see how not all forms of capitals (intangible or tangible) would be material or relevant to all companies; however, this might require a materiality judgment (see later section on ‘Materiality assessments and risk-mapping’). A summary of this framework is seen in [Figure 7.2](#).

Figure 7.2: THE IIRC FRAMEWORK FOR LOOKING AT DIFFERENT FORMS OF CAPITAL – BOTH TANGIBLE AND INTANGIBLE



Source: IIRC (2020) (with permission from the International Integrated Reporting Council © 2020).¹⁰

Many of the non-financial capitals would be considered under ESG, with a large number also intangible. A qualitative identification and judgment would be considered a form of qualitative approach to ESG.

We will now briefly examine how some of these forms of capital may be assessed with some examples across company constituents such as regulators, customers, employees and suppliers.

A positive relationship with regulators may lead to less friction and litigation. Examples might include:

- ▶ social media and advertising companies; or
- ▶ pharmaceutical companies;
- ▶ airlines;
- ▶ financial services; and
- ▶ any company that has a significant regulator, which are many industries.

The relationship between a regulator and a company would be considered an intangible asset (or liability if a negative relationship). A negative relationship might be more likely to lead to litigation, which adds to costs and may lead to penalties, both of which impact cash flows.

The amount of capital that banks and insurers are required to hold may depend on an analyst's view of their relationships and on their reputation with regulators and the public. This in turn could impact return on capital metrics, cash flows and valuation estimates.

Pharmaceutical companies with a positive reputation and products that meet unmet medical needs might have quicker or more certain regulatory approval pathways. This can be assessed by differing estimates of probability of success for future products. For example, the probability of success might be lowered from an industry average of 70% chance of success to 60% for a company with poor reputation, or raised to 80% for a company with a positive reputation. This would affect risk-adjusted **discounted cash flow (DCF)** calculations: faster approval positively impacts cash flows, so reputation and brand are intangible assets.

Customer service, perceived brand value and overall customer satisfaction can be inputs to determine future sales growth rates and so, cash flows. Differing growth rates maybe be impacted by an investors view of reputation and brand value for both positive opportunity and negative risk. A company with high customer satisfaction or strong brand reputation might be expected to grow revenue faster than the industry average in investor estimates.

High employee satisfaction might also impact forward estimates by investors. For instance, a hotel group with high employee satisfaction might be judged to find it easier to recruit new talent, and may be assessed to give a better customer experience, which may lead to higher repeat revenue modelled by investors, or by investors prepared to assign higher valuation ratios (for instance, prepared to buy stocks with higher price-/earnings (PE) ratios or bonds at lower credit spreads).

A poor supply chain or a weak relationship with suppliers may lead to a lower forecast by investors or lower valuation ratios. This might be seen, for instance, in food supply chains for supermarkets, as there have been examples of horse meat in lasagne food products from a poor supply chain. Alternatively, this could be seen in the questioning of the sustainable sourcing of supply chains. On the other hand, strong supply chain management in agile, fast inventory management from short robust supply chains might lead to a more positive view from investors.

These factors can be intersectional. For instance, a poor supply chain and labour practices might be negatively impacted by modern slavery laws or regulation, which might incorporate both a regulator assessment and a supply chain assessment from investors.

Generating ideas

Investment ideas can be generated from the data. Some practitioners start this stage using a valuation screen, or fundamental screen, which may incorporate ESG factors – this may be a mix of positive (e.g. seek high G), negative (avoid low G) or momentum (seek rising G or avoid declining G) to create an attractive investment universe. This is commonly referred to as ‘positive’ or ‘best-in-class’ screening.

Investment ideas can also be generated by themes associated with specific ESG megatrends. For instance, an ESG opportunity theme might be to seek improving access to clean water or to energy services. This is commonly referred to as ‘thematic’ investing.

At this stage, checklists – internal or externally-sourced – may ‘red flag’ companies and be used to narrow the investable universe. For instance, an acceptable low governance score or an unacceptable number of ESG controversies (real world ESG events that are contested by different stakeholders or impact society, e.g. a dam failing). Red flag techniques can also be used in later stages.

These risks may be ESG risks judged on an absolute hurdle basis or judged against what may be ‘priced into the asset’.

A materially negative assessment of a particular ESG factor or collection of factors may lead to a decision that an investment fails to meet a specified hurdle. For example, an incentive structure deemed to be poorly aligned under a G assessment may disqualify a possible investment, the assessment triggers a ‘sell’ or ‘do not invest’ signal.

This assessment can be:

- ▶ **quantitative**, e.g. the carbon intensity of company A is too far above an index benchmark to meet a practitioner’s investment criteria; or
- ▶ **qualitative**, e.g. the experience of the management team in managing environmental risk and the lack of disclosed policies may indicate risks too great for an investor on a qualitative basis.

Scorecards can be used to assess ESG risk and opportunity

7.1.6 Describe how scorecards may be developed and constructed to assess ESG factors.

As an example, a credit analyst identifies a company that has no third-party ESG rating available, but where the company is issuing investment grade bonds that might be investable. In this case, the analyst creates their own ESG assessment. A custom ESG self-assessment tool that reflects the sector-specific risk issues relevant to the issuer is created, and the company management or investor relations team is asked to fill this out. An ESG scorecard based on the self-assessment response is created with ESG factor scores ranging from 0 to 5, and high or low scores are then used in valuation or further assessment work.

Ethical marketing may, for example, be identified as a key ESG social risk (perhaps via a risk-mapping process, which is covered in the next section) for pharmaceutical companies X, Y and Z:

- ▶ Company X has no policy and a history of violations, so they score 0.
- ▶ Company Y has a brief policy and no violations, so they score 3.
- ▶ Company Z has a detailed policy and one minor violation, so they score 4.

It may be that scores of 0 make a company unattractive and scores of 5 lead to further investment work. Alternatively, total scores of all factors in the scorecard are used in further assessment or valuation work.

The scorecard can take a qualitative judgment of a factor and put a form of quantitative score on it.

ESG ratings agencies may provide scores and a form of scoring is typically used in commercially available ESG ratings services. These can be used raw or adjusted by practitioners to reflect their own views. These scores can then be compiled for use in assessment or idea generation.

The scorecard technique could be used on private companies as well public companies. Challenges to creating private company scorecards is that there is less likely to be a rating agency score for a private company, and less information about them in the public domain. This scorecard technique can be adapted to scoring countries for sovereign bond analysis or to infrastructure and real estate. For example, environmental policies could be scored for infrastructure and commitments to a carbon net zero plan, or corruption levels could be scored for countries.

→ See Section 5 for more on ESG ratings agencies.

In summary, to develop a scorecard:

1. Identify sector or company specific ESG items.
2. Breakdown issues into a number of indicators (e.g. policy, measures, disclosure).
3. Determine a scoring system based on what good/best practice looks like for each indicator/issue.
4. Assess a company and give it a score.
5. Calculate aggregated scores at issue level, dimension level (environmental, social or governance level) or total score level (depending on the relative weight of each issue).
6. Benchmark the company's performance against industry averages or peer group (optional).

Materiality assessments and risk-mapping

7.1.7 Assess ESG issues using risk mapping methodologies.

Some ESG issues might be material for companies in a specific industry (e.g. water stress can disrupt the operations of mining or beverages companies, which rely heavily on clean water in their production processes), but not for other sectors (e.g. water stress has little impact on media or financial companies).

It should be noted that not all risks can be managed. For material ESG risk that has not been managed by a company, there are two types of risk:

1. unmanageable risk, which cannot be addressed by company initiatives; and
2. the management gap, which represents risks that could be managed by a company through suitable initiatives but which may not yet be managed.

As above, some risks are manageable, like the risk of on-the-job injuries, which can be managed, for example, through:

- ▶ establishing stringent safety procedures;
- ▶ having emergency response plans and safety drills; and
- ▶ promoting a safe culture.

Some risks are not (fully) manageable, such as the carbon emissions of aeroplanes in flight. An airline can manage some of the issues (for example, by modernising aircraft, installing winglets and working on information and communication technology (ICT) systems to minimise time that airplanes spend idling on the runway), but it cannot easily manage all of an airplane's flight emissions. This means that an airline has some unmanageable risk on carbon emissions, which should contribute to its unmanaged risk score on that issue.

Unmanageable risk is only one of the two components of unmanaged risk. The second component is the management gap. It speaks to the manageable part of the material ESG risks a company is facing and reflects the failure of the company in managing these risks sufficiently, as reflected in the company's management score.

Example: Sustainalytics

Human capital

Human capital is difficult to manage. A company can employ hundreds of thousands of people, and it is very hard to imagine management programmes that can eliminate all risk of sexual harassment, low morale or high turnover. But it is expected that the company has full control over these policies. Moreover, Sustainalytics has confidence that strong policies can effectively promote a working culture that limits material risk from sexual harassment or a workplace with destructive low morale and turnover. However, companies have challenges in mitigating risks in the labour supply chain. Therefore, a manageable risk factor is applied to distinguish that some risk within the issue cannot be managed.

In terms of a company's risk management capabilities, review of controversy cases can be helpful.

A controversy case is defined as an instance, or ongoing situation, in which company operations or products allegedly have a negative environmental, social or governance impact.

Determining which ESG issues are most material is not an exact science, and there might be important differences between what each investor considers most material, even when analysing the same company.

Determining which ESG issues are most material is not an exact science, and there might be important differences between what each investor considers most material, even when analysing the same company. This is because it is typically a forecast of judgment on how much one ESG or risk factor will impact a financial metric such as future cash flow.

Frameworks such as the materiality maps provided by the SASB are helpful in providing some guidance but investment professionals often develop their own view on what is most material. This spectrum of opinions concerning materiality is exemplified through the different examples of materiality maps provided in [Figures 7.3](#), [7.4](#) and [7.5](#). These highlight the differing views investors might take.

Figure 7.3: EXAMPLE MATERIALITY MAP OF HIGH-LEVEL SECTORS ACROSS ESG FACTORS

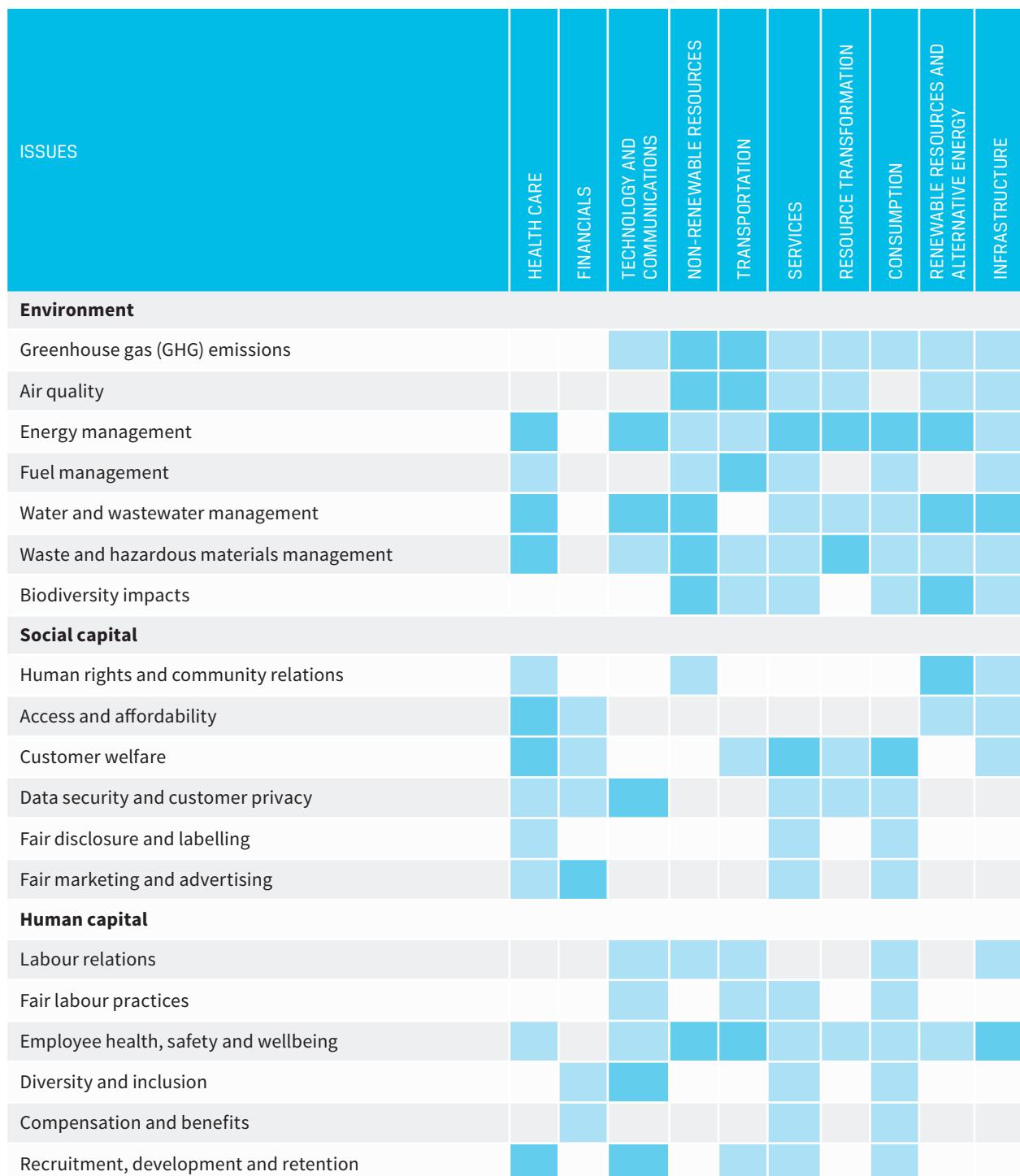
	1	2	3	4	5	6
Airlines	Climate change impact	Employment quality	Community development	Ownership and control		
Autos	Regulatory threshold and compliance	Resource management	Product responsibility	Ownership and control		
Banks (DM)	Community development	Customer privacy and protection	Board structure	Executive remuneration	Business ethics and culture	
Banks (EM)	Community development	Product responsibility	Business ethics and culture	Ownership and control		
Beverages	Resource management	Product responsibility	Business ethics and culture			
Capital goods	Regulatory threshold and compliance	Business ethics and culture	Ownership and control			
Chemicals	Regulatory threshold and compliance	Resource management	Product responsibility	Business ethics and culture		
Construction materials	Climate change impact	Resource management	Regulatory threshold and compliance	Health and safety	Business ethics and culture	
Food and home and personal care	Resource management	Climate change impact	Assessment and disclosure	Product responsibility		
Food retail	Resource management	Product responsibility	Board structure			
Leisure	Assessment and disclosure	Climate change impact	Regulatory threshold and compliance			
Luxury	Resource management	Human rights	Customer privacy and protection	Ownership and control	Executive remuneration	
Mining	Regulatory threshold and compliance	Resource management	Assessment and disclosure	Health and safety	Business ethics and culture	
Oil and gas	Climate change impact	Resource management	Health and safety	Business ethics and culture	Ownership and control	
Pharma	Product responsibility	Community development	Human rights	Business ethics and culture		
Real estate	Climate change impact	Assessment and disclosure	Regulatory threshold and compliance			
Retailing	Resource management	Pollution of air, water and soil	Health and safety	Product responsibility	Ownership and control	
Technology	Pollution of air, water and soil	Product responsibility	Health and safety	Employment quality	Business ethics and culture	
Telecoms	Regulatory threshold and compliance	Resource management	Community development	Customer privacy and protection	Ownership and control	Executive remuneration
Utilities	Regulatory threshold and compliance	Climate change impact	Resource management	Customer privacy and protection	Community development	
KEY	Environmental		Social		Governance	

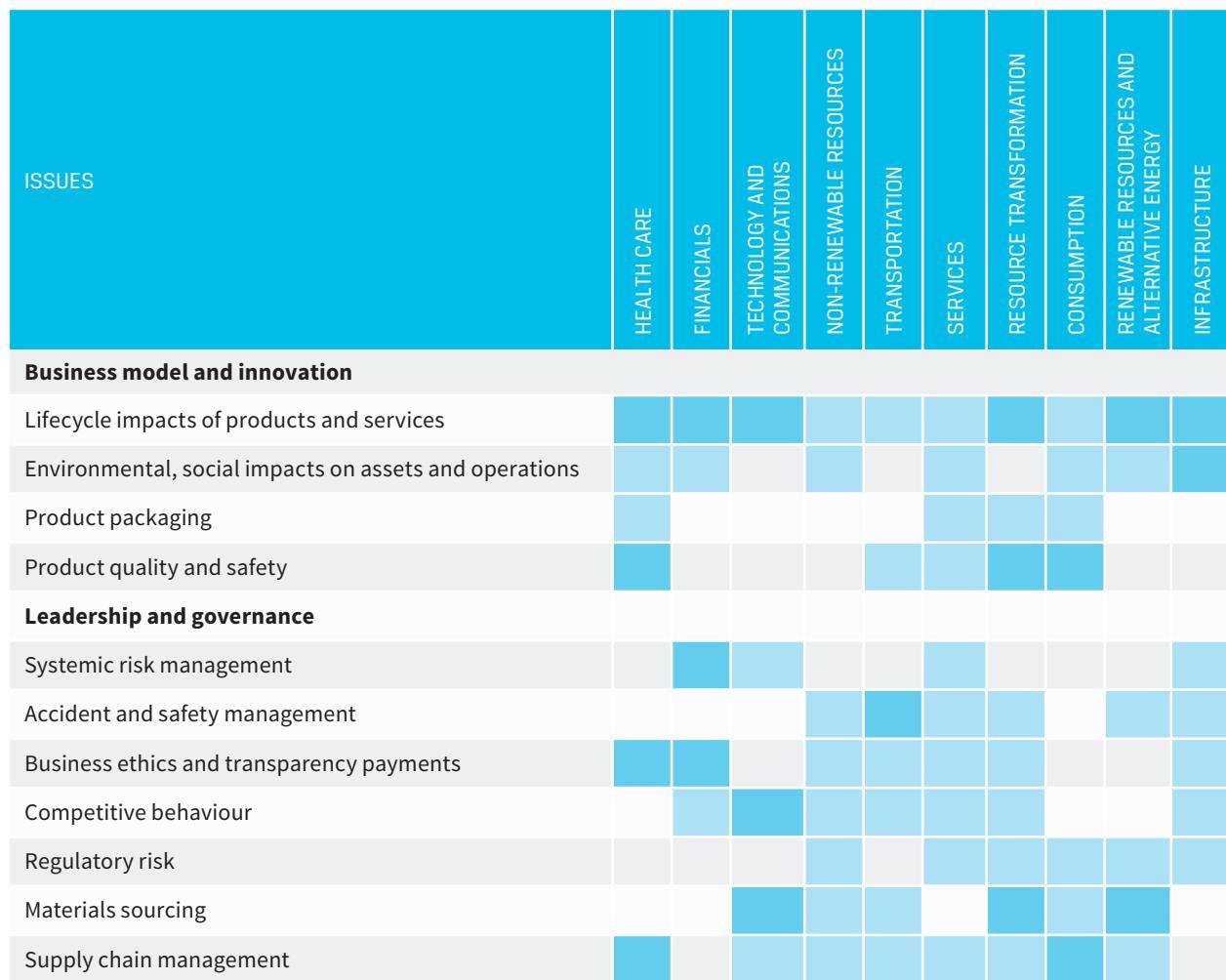
Source: HSBC.¹¹

Figure 7.3 highlights the numerous and shifting nature of many ESG factors.

One publicly available sector materiality assessment is provided by SASB (see **Figure 7.4**). This shows that different industries may have different exposures (compare with **Figure 7.5** on healthcare).

Figure 7.4: EXAMPLE MATERIALITY MAP OF HIGH-LEVEL SECTORS





Source: SASB.¹²

One can deduce that individual companies in the same market-defined sector may be judged to have different material ESG factors impacting their business. For instance, within insurance, a US healthcare insurer will have different factors impacting it compared to a car insurance firm.

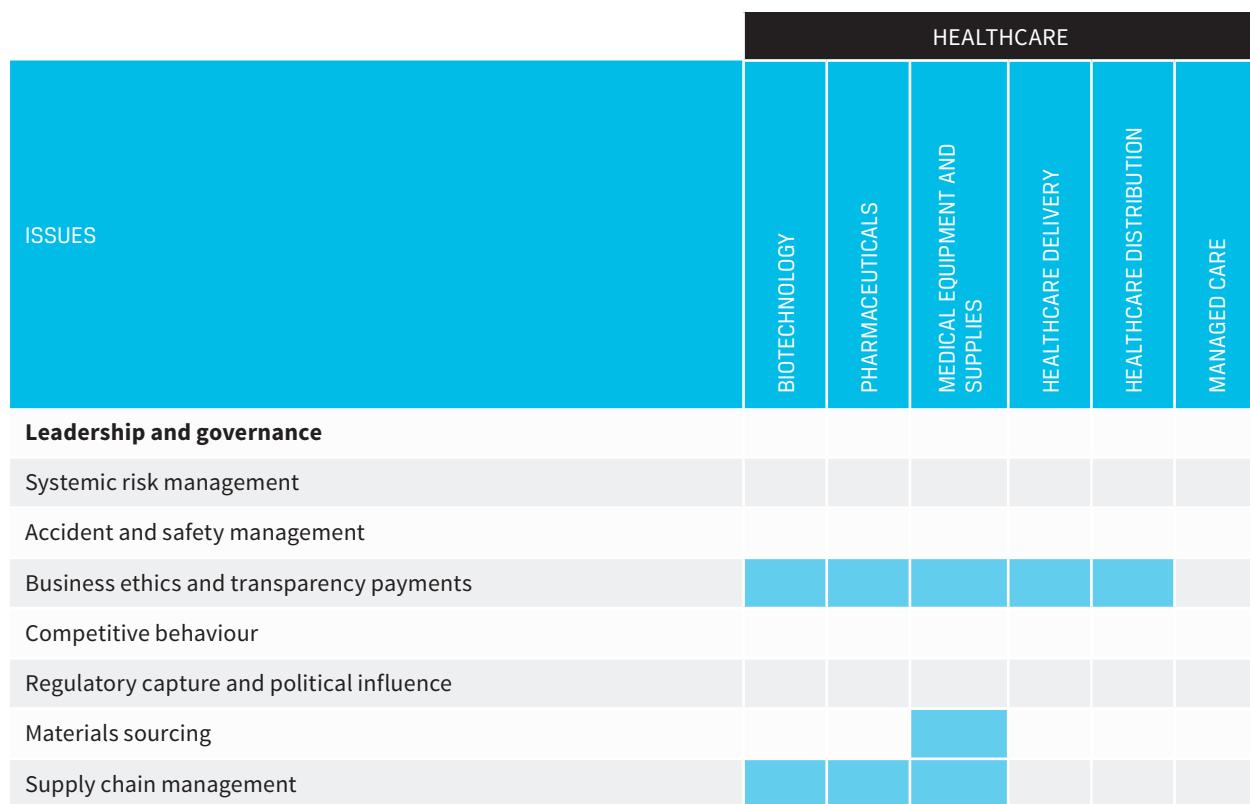
Investors can find more direct comparisons useful in analysis. In the healthcare industry example ([Figure 7.5](#)) using the SASB materiality map, a pharmaceutical company is judged to have a material exposure to fair marketing practices.

- ▶ Pharmaceutical company A is judged to have a low risk exposure to this factor because it has up-to-date policies and training programmes, and has never had a regulatory warning letter.
- ▶ Pharmaceutical company B is judged to have a high risk to this factor because it lacks a strong policy, training is minimal and the company has received several fines and warnings from regulators.
- ▶ Pharmaceutical company C is judged to have no risk to this factor, as it only engages in pharmaceutical research and does not have any commercially marketed products. Here we can see that even though the factor is material to the sector, it is of limited risk or arguably no risk to the company as the company is not exposed.

These pharmaceutical companies can be more directly assessed on this same factor compared to each other.

As seen earlier, the same technique can be applied to whole sectors or sub-sectors, as well as companies. For instance, biodiversity as an E factor is not seen to impact the whole pharmaceutical sector, but may have an impact on the agriculture sector.

Figure 7.5: EXAMPLE MATERIALITY MAP OF HEALTHCARE SUBSECTORS FROM SASB



Source: SASB.¹²

Using SASB as a baseline framework in a materiality assessment

One example of where you might want to use SASB as a baseline framework in a fundamental active investment process might be for a bio-pharmaceutical company that has a cannabis plant as its raw active ingredient. (This applies to the company GW Pharmaceuticals.)

As is shown in [Figure 7.5](#), ‘materials sourcing’ is not considered a material ESG risk for biotechnology and pharmaceutical companies.

However, an analyst might judge that a cannabis-derived medication would be a material risk on two accounts:

1. Growing the plants is potentially a complex operation with enhanced risks compared to standard manufacturing.
2. The regulatory oversight is more complex as the drug regulator as well as the pharmaceutical regulator (in the USA, the Drug Enforcement Agency (DEA) and the Food and Drug Administration (FDA)) would both be involved. Whereas for a standard pharmaceutical, it would only be the pharmaceutical regulator that would be involved.

The analyst might further judge that there is an ESG opportunity here as well because of:

- ▶ the technology needed to harvest the plants;
- ▶ the knowledge protection around that technology; and
- ▶ the barriers involved in having to satisfy two regulators.

This might lead to longer intellectual property protection (and longer cash flows) as well as higher barriers to entry (and lower likelihood of competition). In this example, the social impacts might be more complex to judge as well, whereas all the other aspects of the company’s analysis may correspond to where SASB has judged most risk to be (e.g. energy, water and waste under [E](#), see [Figure 7.5](#)).

As of 2019/20, there is a trend in company reporting to include more material ESG factors. However, there is no agreement from various stakeholders on materiality and how to report, so developing proprietary materiality assessments may continue to be an important technique for investors to potentially develop their own analytical framework alongside standardised frameworks, such as SASB or the *Global Reporting Initiative (GRI)*. As SASB becomes more established as a leading materiality framework, it may be worth further investigation as there are increasing calls from stakeholders for such standardisation.

ESG risk-mapping methodologies

ESG risk-mapping may also be done at the research stage. Here, an individual company (equity or credit) or sector has its risk mapped to a specific theme or factor, usually one that has been judged ‘material’.

Risk-mapping could also mean mapping a portfolio or investable universe against a specific ESG risk (e.g. climate risk or water-related risks) to identify which sectors or companies contribute the most to this particular risk profile (e.g. carbon- or water-intensive companies). Examples of risk-mapping methodologies include carbon foot-printing or testing portfolios against different climate scenarios.

Mapping can also be done for material opportunities (e.g. opportunity from recycling or the transition to renewable energy) as well as risks. It can be scored, for instance, on a ten-point scale, or given a qualitative label, such as low or high risk. This shows how the scorecard technique (described earlier) can be combined with a mapping technique.

B. Valuation and company integrated assessment stage

- | | |
|--------|--|
| 7.1.8 | Explain how ESG complements traditional financial analysis. |
| 7.1.9 | Analyse how ESG factors may affect industry and company performance. |
| 7.1.10 | Analyse how ESG factors may affect security valuation across a range of asset classes. |

After the research stage and any relevant risk and materiality mapping (covered in [section A](#)), practitioners assess the impact of material financial and ESG factors on the corporate and investment performance of a company.

This can lead to adjustments to:

- ▶ forecasted financials;
- ▶ valuation-model variables, such as cost of capital or terminal growth rates in discounted cash flow analysis;
- ▶ valuation multiples;
- ▶ forecasted financial ratios;
- ▶ internal credit assessments; and
- ▶ assumptions in qualitative or quantitative models.

Regardless of whether a hurdle process is used, adjustments in models can be made – positively or negatively – on assessment.

Model adjustments based on ESG assessment

Discounted cash flow input adjustments

For example, a company's environmental management processes and policies are judged strong or weak. After this judgment, the cost of capital used to discount cash flows in a DCF analysis is adjusted down or up by 1% to account for this. This can also be on a country- or sector-basis, where a country or sector ESG risk factor may contribute to a change in a cost of capital or terminal value growth assumption. For example, the coal sector may be judged to have a negative environmental impact.

Note how the judgment on the **E** factor leads to a change in the financial model assumption.

This is a complement. A higher cost of capital would lead – all other factors being equal – to a lower intrinsic value estimate from the model. This is an example of how the **E** factor then impacts a valuation model.



Also note the sizing of the adjustment is typically at the discretion of the analyst, although there may be guidelines the analyst utilises.

Explicit profit and loss sales, balance sheet and margin adjustments from ESG assessment

Rather than changing model discount assumptions, explicit sales or margin assumptions may be adjusted. For example, an analysis of a company's strong management of its employees (as assessed by employee engagement or satisfaction metrics) leads to an assessment of strong future customer satisfaction, which in turn leads to sales forecasts five years out being raised to above the industry average to account for this strong social factor score.

→ See 'Further reading' on academic work on employee satisfaction found in Professor Alex Edmans' work.

An adjustment can be a direct impact, e.g. an assessment of an environmental litigation fine being US\$400m (£288m), or the risk adjusted impact of a carbon tax might be forecast to be an absolute dollar amount per year in a model.

Adjustments can be made directly to the balance sheet or capital expense lines. A practitioner may believe that ESG factors will lead a company to decrease or increase its future capital expenditure. A forecast ESG impairment event, e.g. a sub-standard factory, may result in an impairment charge being made to bring the company's book value down.

Valuation ratio adjustments with ESG integration

Adjustments can also be made to valuation ratios.

- ▶ An investor may decide a company is worth a certain PE ratio premium or discount versus its peers due to ESG factors.
- ▶ Alternatively, an investor may only be prepared to invest in a company with, for example, a 50% discount on a PE ratio versus an index benchmark because the company is judged to have a high ESG risk.
- ▶ Conversely, an investor may be willing to invest in a company at a 50% premium on a PE ratio due to strong ESG characteristics.

The adjustment may also be absolute. For instance, the investor may assign a 'fair value PE' of 16x to a strong ESG company versus 14x for an average ESG company and 12x for a weak ESG company.

How ESG analysis can complement traditional financial analysis

A few theoretical examples can now be examined. (These examples might be useful for thinking about how ESG factors affect industry and company performance. They show how integrated many ESG techniques and thinking are.)

One theoretical concept in fundamental analysis might be:

Weak or strong ESG factor:

- ➔ weak or strong business driver or moat;
- ➔ up or down sales or margins;
- ➔ up or down long term cash flow;
- ➔ up or down intrinsic value;
- ➔ up or down share price.

This might be expressed as:

High employee engagement or satisfaction (proved by being number one versus competition on surveys or X% higher score against a threshold):

- ➔ high customer satisfaction (judged by high net promoter score);
- ➔ higher sales growth than competition;
- ➔ higher valuation than competition.

The judgment of an intangible ESG factor, such as employee relations, complements an analysis of customer satisfaction and the assumptions that lead into a model of sales growth (a traditional financial factor).

Alternatively:

High carbon intensity (proved by scope 1 and 2 carbon intensity being both absolute and relative to sector):

- ➔ increased risk from carbon taxes;
- ➔ increased cost of debt for new project financing;
- ➔ higher taxes;
- ➔ increased balance sheet risk of default on debt;
- ➔ change in debt rating;
- ➔ lower value of corporate debt.

Here, the judgment of an **E** factor, such as exposure to carbon, leads to analysis on the risk to debt pricing. It complements a traditional take on default risk.

Alternatively:

Weak governance identified in a private company (proved by board with poor skills, not independent, non-diversified thinking):

- ➔ increased risk of negative capital allocation decisions;
- ➔ lower future cash flows or difficulty in initial public offering (IPO) to capital markets;
- ➔ lower valuation or increased bankruptcy risk.

Here, a judgment on a **G** factor in a private company impacts both a valuation and possible exit for a private equity investor.

Active ownership as an ESG technique

It is worth noting here how integration with a stewardship function – whether outsourced or part of the same investment team – might work in an integrated ESG approach. For instance, a stewardship-led investment team may gain a commitment or an action to improve, e.g. weak governance by gaining a commitment to recruit independent board members and an independent chair – and thereby, influencing future cash flows and valuations. Such strategies may come under an active ownership or ESG activist approach. Information gained from an active engagement may also inform the ESG and traditional analysis, for instance, a management team's unwillingness to disclose carbon emissions and not commit to future disclosure may impact an investment team's ESG analysis.

The challenge of company disclosure on ESG topics

7.1.11 Interpret a company's disclosure on selected ESG topics.

Companies have variable disclosure policies and reporting. While for listed companies, minimum accounting reporting standards are adhered to, these standards vary in different regions. Disclosure of ESG data is often not compulsory under typical reporting standards. Although 'material factors impacting financials' is a standard reporting idea, management has large flexibility in what is chosen to be reported. Conversely, there can be a problem of over-disclosure – particularly of non-material ESG information.

Simply because a company does not disclose relevant ESG data does not necessarily mean it is managing its ESG risks or opportunities poorly. Smaller companies with fewer resources typically put less effort into reporting disclosure. There are geographical differences in reporting, so cultural differences can lead companies to assume different judgments on the materiality of certain ESG factors. Management may also assume certain information is of limited importance to investors or is commercially sensitive. It might be that ESG information is available to other stakeholders e.g. supply chain information to suppliers, or supply chain audit to business customers, but is not publicly available to investors.

Disclosure varies by geography and is influenced by company size (due to company resources) and industry practice. Certain ESG data may be easier to collect and disclose, but may not be considered material by investors. Although in terms of ESG reporting, data might be important to other stakeholders (even if it is not material to investors), and so, a company may choose to disclose this non-financially material information.

That said, a lack of disclosure could be an indicator of poor management and many investors prefer to see relevant disclosure so judgments can be made. One common technique is to ask company management, often investor relations, to disclose, where possible, missing ESG data or explain why it might be missing.

Other issues are that an ESG disclosure, when revealed, might be unaudited, incomplete or incomparable to other companies.

While poor disclosure is a challenge to market efficiency, this relative inefficiency could arguably be a source of superior risk-adjusted return for the skilled investor. This argument would suggest this type of investment analysis is about superior judgments concerning qualitative, non-computable factors and how things are likely to unfold in the future.

Example

Assessing what an E disclosure might imply

A cement company discloses its carbon mitigation strategy, but only discloses its carbon scope 1 emissions, omitting scopes 2 and 3 (see Chapter 3).

Some of its competitors do not disclose any carbon data and some disclose data on all three scopes. The carbon data the company discloses would have been assured by an independent third party.

Questions an analyst might want to ask include:

- ▶ **What is the size of the company?** A smaller company in employees, resources or market capitalisation may not be expected to report to the same standard as a larger company, although over a material item, this might be a weakness.
- ▶ **Does the presence of a narrative and strategy (and its strength or weakness) improve an analyst's view on disclosure?** Is this narrative-reporting aligned with best practice guidance (for instance, the International Accounting Standards Board's *IFRS Practice Statement on Management Commentary*)?¹³
- ▶ **How well does the company compare to its competitors?**
- ▶ **Are there any signs from reading the strategy or the size of the scope 1 data?**
- ▶ **Would the business model suggest scope 2 would be a material matter?** The fact that the scope 1 data has third-party assurance should, with all other matters being equal, give more weight to the disclosure.
- ▶ **How long has the company been disclosing and has management made other commitments to future disclosure?** Answers and judgments to these types of questions will sway how an analyst rates a company, e.g. on a scorecard approach or the discount rate they might use in a DCF or valuation.

As a follow-up, the analyst could:

- ▶ call the company and ask for an explanation of the data's absence and the company view on its materiality, and judge its willingness to engage or commit to publishing the data; or
- ▶ estimate the data and find a third-party data source.
 - » A quantitative approach would have to consider how to deal with missing data.
 - » The analyst also has to judge the materiality of the missing information, and might view cement as a carbon-intense industry.
 - » A disclosure on carbon intensity would be viewed as more material for a cement company than a software service business.
 - » A software service business would not be expected to be carbon-intense.

On occasion, a lack of disclosure may be enough to red flag an investment completely. For example, a company hires a new CEO but will not disclose in sufficient detail what the long-term incentive plans for management are based on. This may be too strong a red flag for the analyst to recommend any investment.

Another factor to consider is the strength of environmental accounting. There is a lack of consensus on how best to account for natural capital currently. It is also unclear how selective disclosure impacts firm value; there is current academic and practitioner work exploring this.¹⁴

The example also shows both qualitative and quantitative ESG tools and demonstrates the intertwined nature with traditional assessments.

C. Investment decision and portfolio construction and ESG integration techniques in practice

7.1.12 Apply the range of approaches to ESG analysis and integration across a range of asset classes.

Several adapted case studies across equities and fixed income will be highlighted in this section. Though this section does not provide detailed case studies in private equity, infrastructure and other alternative investments, many similar techniques can be used in those asset classes. The end of this section allows for some discussion.

Unless mentioned otherwise, the case studies are adaptations from CFA Institute case studies (see [Further reading](#)).

The following case studies we will look at are:

- ▶ Case study 1 – Quantitative systematic approach to an environmental tilted mandate in global equities.
- ▶ Case study 2 – Fundamental ESG integration.
- ▶ Case Study 3 – ESG analysis supporting a premium valuation ratio.
- ▶ Case study 4 – ESG DCF scenario analysis.
- ▶ Case study 5 – Credit analysis integrating ESG.
- ▶ Case study 6 – Credit ESG integration practice.
- ▶ Case study 7 – Sovereign debt analysis.

→ A detailed look at how quantitative investment approaches work at a portfolio level are examined in Chapter 8.

Case study 1

Quantitative systematic approach to an environmental tilted mandate in global equities

(This is a theoretical case study based on the author's knowledge and experience.)

A foundation endowment, with an underlying mission to fund climate science, wishes to invest part of its endowment funds in a systematic global equities strategy tilted to companies that have positive environmental characteristics.

The endowment discusses a mandate with a quantitative systematic investment manager. The endowment decides the following rules and factors are important:

- ▶ the use of at least two third-party ESG scoring systems;
- ▶ a proprietary scoring system;
- ▶ all invested companies to have a publicly available environmental management policy;
- ▶ the average blend of the rating systems to meet a minimum criterion on an E score; and
- ▶ rebalance quarterly.

In practice, for specific mandates many further detailed rules and conditions can be set, and on other aspects of ESG or other established quantitative and fundamental factors, e.g. quality or geography.

The fund manager converts the third-party E scores through its own formula. They use the database to flag companies with no environmental management policy. The manager has an in-house team that uses a scorecard approach to score companies on material relevant environmental risks and opportunities. This score is combined with the third-party scores and a minimum threshold set, where the bottom 20% of companies are deemed ineligible for the fund.

→ See Section 2 for more on the scorecard approach.

The remaining companies are weighted to approximately match a specified global benchmark with respect to momentum, quality and volatility factors, as well as other ESG factors, and within the bounds of other construction criteria, such as tracking error and market beta.

These calculations are performed once a quarter and the portfolio is adjusted accordingly. The rules are examined once a year in consultation with the end client. Performance and ESG measurements are recorded and assessed. An engagement or stewardship programme may be implemented for companies not meeting, or in danger of not meeting, the specified environmental criteria.

Case study 2

Fundamental ESG integration

This fund manager adjusts the most relevant financial forecasts (revenue, profits or returns on capital, capital and operational expenditures, and cash flows) based on material ESG factors. They also consider the potential ESG impact on the overall security valuation by adjusting the target multiples (discount or premium and discount rate) on ratio analysis.

The chemical sector is analysed. The trends assessed are:

- ▶ ageing populations that will require more health and well-being products;
- ▶ regulations that influence a move toward biodegradable or bio-derived plastics; and
- ▶ evolving consumer sensitivity to ‘green’ issues.

A company is sought after if it reflects positively on those trends.

Company A is one of the world’s leading suppliers of specialty chemicals based on renewable raw materials that are used in personal care, life sciences and industrial chemicals. It enjoys an industry-leading position in sustainability, having differentiated itself from its petrochemical-based specialty chemical peers.

Two-thirds of Company A’s raw materials come from natural sources, and it is well positioned to participate in the trends described earlier.

Company A has opened a new chemicals plant with a renewable source plant-based feed stock. The fund manager judges that the plant will allow the company to capture more of the value chain in surfactants and enable it to charge a premium as consumers are willing to pay more for sustainable products. This will improve revenue growth through increased share and pricing.

The company is forecast to grow sales two whole percentage points above the industry average for the next ten years for this. This is embedded in a DCF forecast and a value calculated.

This value is then cross-checked with a PE ratio. The fund manager is prepared to pay a 50% premium on a PE basis due to its strong sales and earnings growth.

Company A currently trades at only a 10% PE premium to the chemicals sector and the DCF is forecast to have 35% target price upside. The company is selected to go into the fund manager’s portfolio.

Thanks to Hyewon Kong for the case study example upon which this case study is based.

Case study 3**ESG analysis supporting a premium valuation ratio**

An investor is reviewing their portfolio.

Company Z has been performing well and now has a 50% premium to the sector on a PE basis.

To achieve long-term value creation, in accordance with its investment philosophy, the investor needs to have a strong conviction regarding the company's ability to maintain its industry-leading products and profitability.

Key operational risks to the company include:

- ▶ the maintenance of the company's technical leadership through investment in human and physical capital; and
- ▶ the potential for manufacturing delays or product defects that may impact its reputation and market share.

E and S data were assessed using third-party databases. The company ranked as a top 10% performer over the relevant criteria. Three major areas were considered strong enough that an even higher PE premium was recommended and the company was kept in the portfolio. The areas were:

1. Asset quality and efficiency: The company had industry-leading resource (water and energy) intensity per unit of revenue, higher performance regarding water and waste recycling, and lower carbon emission intensity than its peers.
2. Attracting and retaining talent: The investor evaluated employee engagement and compensation to help gauge the risks associated with attracting and retaining talent. The company's average employee wage was significantly higher than its peers and it had a low employee turnover. In a highly complex research and development-intensive industry, this suggested that the company is well positioned to attract and retain top talent. This in turn should enhance the company's innovation potential.
3. Sustainable business model: These elements were considered superior to the company's competitors:
 - a. its positioning as enabling smaller, faster, and more energy-efficient electronics;
 - b. its customer-centric approach of providing aftermarket enhancements and refurbishments to improve customers' capital efficiency; and
 - c. its culture of innovation and collaboration with internal and external stakeholders that have the potential to generate both new business opportunities and broader social benefits.

Thanks to GS Sustain for their case study example upon which this study is based.

Case study 4**ESG DCF scenario analysis**

This investment team uses an integrated approach. Rather than having separate ESG analysts, the team's portfolio managers perform and integrate ESG analysis. They believe this is a better way to value and assess stocks. The team use multiple sources of ESG information as it represents an abundance of ESG-related opinions that require interpreting, and portfolio managers are best placed to filter this advice and ascertain how it relates to a company's business model and valuation.

The team starts with a fundamental analysis to identify any material positive or negative ESG factors. The team embed that assessment into an analysis of the competitive position and the sustainability of the business, which they put into valuation models. They aim to invest only in companies that perform strongly in four areas:

1. business model;
2. market share opportunity;
3. end-market growth; and
4. management and ESG.

The Global Equities team identified several ESG risks (contingent liabilities) and ESG opportunities (contingent assets) for a leading healthcare insurer and a healthcare cost management and IT provider managing 5% of US healthcare spending.

ESG risks

As custodians of the personal and medical details of millions of people, the company needs to keep the data secure: false savings here can have long-term consequences, including regulatory and political risks and the potential impairment of the company's social contract with customers and the wider society.

The team challenged management on the risk of privacy data breaches, asking how that risk is being managed and what policies are in place to mitigate that risk. Management acknowledged that information about their data security was not available on their website, but several management members reassured the team about the quality of the policies, training, and general operation management of data handling and security that are in place. Nevertheless, the team still modelled a DCF valuation scenario looking at the possible impact of privacy data breaches.

ESG opportunities

The data analytics business was viewed as an ESG potential. The analytics business allows it to create cheaper, better healthcare options for businesses, governments and patients, creating strong competitive advantage and an ESG contingent asset. For instance, it identified 150 diabetic patients not taking their medication properly, 123 of whom were in Texas, which enabled its client to implement location-specific measures utilising preventive healthcare techniques.

In another instance using its data analytics, a US state department discovered clusters of patients with asthma in certain streets and buildings, and found that those buildings correlated with cockroach infestations, allowing it to successfully prosecute inefficient landlords and ultimately raise living standards for tenants.

The team assessed the materiality of all of this information and assigned a rating for the four components of the company's strengths:

- ▶ business model;
- ▶ market share opportunity;
- ▶ end-market growth; and
- ▶ management and ESG.

cont'd...

Case study 4

...

The team then performed a DCF scenario analysis embedding the material ESG risks and opportunities. The team prefers DCF and explicit model scenarios for sales, margins and asset turns, because they are judged as a more accurate method of modelling than an adjustment to a discount rate or terminal value for a company specific assessment. Sum-of-the-parts and standard financial ratio assessments are also performed.

The analysis was peer-reviewed within the team and the assumptions were stress-tested, challenged and refined before the rating and valuation were confirmed. In the peer review, assumptions are flexed in real time to see how further valuation scenarios change. These include:

- ▶ for the upside scenario – increasing EBIT margins and sales growth; and
- ▶ for the downside scenario – normalising sales to a lower growth rate (3%) and looking at the sales impact over more than one year.

The core findings supported significant valuation upside and limited probability of mild downside. The stock was then added to the portfolio after a portfolio construction process.

Adapted from RBC (Royal Bank of Canada) Global Asset Management example case study.⁷

Case study 5**Credit analysis integrating ESG**

This credit investor, when analysing a corporate bond for investment, evaluates an issuer's business profile, market position and competitive profile, as well as fundamental credit measures (such as margins, leverage and cash flow). The analysis then turns to an evaluation of management and sector-specific material ESG indicators, such as carbon emissions, workplace injury rates and the composition of the board of directors.

The ESG analysis consists of a quantitative score and qualitative-based research.

The quantitative score is derived from a proprietary framework that aggregates metrics from ESG research providers as well as from other third-party sources.

The corporate credit analysts also perform a qualitative assessment by reviewing a company's ESG policies and targets, which may be outlined in its corporate sustainability report or on its website, and consider information learned from the engagement call.

The analyst evaluates both the score and qualitative research when assigning a sustainability rating for the company. This measure of an issuer's ESG risk profile may affect the analyst's overall internal rating. Specifically, the analyst may upgrade the internal rating to reflect a corporation's low ESG risks or downgrade the rating if the ESG risks are considered high or poorly managed.

A beverages company is examined. The research identifies several strengths and challenges, some of which may be material from a financial perspective. For example, because water is a key input for the ingredients used in the beverage products, efforts to ensure a steady supply of water would be considered both an ESG strength and a credit strength. Furthermore, water management is a material issue for the sector because a lack of water can impact crop yields and prices, increasing the cost of goods sold.

cont'd...

Case study 5

...

The analyst weighs the strengths and challenges, and compares the performance of (hypothetical) beverage brands to its industry peers.

Strengths and challenges of considered brands

	STRENGTHS	CHALLENGES
E	<ul style="list-style-type: none"> Collaboration with suppliers to improve water efficiency by 15% in high-risk areas. Its GHG goal is aligned with a science-based target initiative. 	<ul style="list-style-type: none"> There is weak disclosure on progress being made to reduce packaging waste.
S	<ul style="list-style-type: none"> It has a comprehensive human rights strategy and strong supplier code-of-conduct protocols. 	<ul style="list-style-type: none"> Certain talent retention and recruitment strategies trail best practices. Products are primarily sugary drinks, despite introduction of healthier brands.
G	<ul style="list-style-type: none"> Robust antibribery policies govern interactions with suppliers. Board of directors formally oversees sustainability initiatives. Rigorous, year-round stakeholder engagement includes consumer groups. 	<ul style="list-style-type: none"> No significant challenges seen.

The totality of material ESG information depicts a company judged to have a strong ESG profile, and a high sustainability rating is assigned which is also incorporated into its final internal credit rating. This credit rating was analysed to be wrongly priced and so an investment was made.

Thanks to Robert Fernandez for the original case study upon which this example is based.

Case study 6**Credit ESG integration practice**

The credit team uses several inputs. It relies on a central ESG/responsibility team for firm policies, approaches and investment tools.

At a company-specific level, the credit team reviews the proprietary measures of ESG risk; that is, its quantitative ESG (QESG) score that the firm has developed. This QESG score represents a snapshot of the company's overall ESG performance.

The QESG score is supported by the company information provided by a separate steward and engagement team (who some practitioners consider an active ownership team) to give a sense of the potential forward trajectory.

A state-owned oil producer was examined. ESG factors emerged as recurring themes in the credit discussion: the company's labour safety track record was below the industry average and the company had experienced frequent oil spills and leaks in the past. Spills and leaks could result in fines and production downtime, damaging the company's cash flow profile.

cont'd...

Case study 6

...

A state-owned oil producer was examined. ESG factors emerged as recurring themes in the credit discussion: the company's labour safety track record was below the industry average and the company had experienced frequent oil spills and leaks in the past. Spills and leaks could result in fines and production downtime, damaging the company's cash flow profile.

After the initial credit committee analysis, an ESG score of 4 was assigned (below average on a scale of 1 to 5, with 1 being the best). Bonds acquired through the new issue process were kept, but due to the low ESG score, there was no further exposure to credit.

Later that year the ESG score was upgraded to 3 (from 4) to reflect the company's improvement in the following ESG factors:

1. improvement in worker safety (injury frequency per million man-hours worked declined 35% year on year); and
2. progress in reducing environmental waste and emissions (water reuse increased 66% year on year, while sulphur oxide emissions declined 45% year on year).

After the score upgrade, the investors added to the bond position. The company's ability to manage ESG risks was assessed to be improved and adequate.

Thanks to Mitch Reznick and Audra Stundziaite for the original case study upon which this example is based.

Case study 7**Sovereign debt analysis**

An investor uses ESG as an enhanced analysis of sovereigns to better assess their ESG-related risks and opportunities.

The investor assigns a financial stability score (FSS) to a country based on the overall balance sheet strength and ESG factors. The FSS ranges from +4 to -4 for those countries and currencies deemed to make it into the opportunity set and will lead to exclusion for those rankings below -4. However, the FSS is determined after a review of the ESG factors, and a strong sovereign balance sheet might be heavily penalised due to weak ESG factors. In this example, a country with a strong balance sheet can be significantly negatively affected by ESG factors.

At the time of analysis, the investor believed the Russian ten-year government bonds offered an attractive real yield of 3% with a Russian ruble undervaluation of over 10% versus the US dollar in purchasing power parity. But, the investor thought that the valuation needed to be considered in conjunction with a thorough balance sheet analysis and ESG factors to ascertain the underlying investment risk.

The strength of the balance sheet was judged by looking at:

- ▶ gross domestic product (GDP);
- ▶ inflation;
- ▶ government revenue;
- ▶ fiscal balance;
- ▶ gross debt;
- ▶ current account;

cont'd...

Case study 7

...

- ▶ currency reserves; and
- ▶ external debt.

It was given a strong score on this measure.

Although Russia's balance sheet is strong in this assessment, its governance factors rank very low according to the World Bank's worldwide governance indicators. The investor believes the governance factor strongly influences the social and environmental factors as the government sets the policies for environmental and social matters, and, in turn, influences the country's long-term sustainable economic growth.

These G factors were considered:

- ▶ political stability;
- ▶ absence of violence or terrorism;
- ▶ government effectiveness;
- ▶ regulatory quality;
- ▶ rule of law;
- ▶ control of corruption; and
- ▶ voice of accountability.

Third-party ratings scores were used. The investor determined a low and deteriorating score on the government indicator. The rankings for rule of law and control of corruption were judged to be relatively low and unchanged over time. The investor believed that did not bode well for foreign direct investment inflows due to the absence of clearly defined property rights, international sanctions, and hence, long-term economic growth. These factors weighed on the FSS score.

The investor then used the following indices to judge social capital strength:

- ▶ a life expectancy index;
- ▶ an education index; and
- ▶ the human development index.

The investor judged Russia's low levels of health spending, coupled with an unfavourable demographics profile, might impact life expectancy negatively. This, in turn, would reduce the overall future workforce, leading to lower productivity and future economic growth, and likely negatively impact sovereign creditworthiness in the long term. Again, the social aspect, while it does not have an imminent economic impact, was judged to be unfavourable in the long term with regard to the FSS.

Combining all factors Russia was given a –4 score on FSS, the lowest possible score.

When completing portfolio construction between two countries with equal real yields, the one with the higher FSS will be favoured. This is due to the belief that a country with higher standards on all or some factors would have a better return outcome over the investment horizon.

Thanks to Claudia Gollmeier for the original case study upon which this example is based.

→ See the following section for a discussion on the challenges of sovereign analysis and ESG.

Discussion of private markets, real estate and infrastructure

Real assets (including vacant land, farmland, timber, infrastructure, intellectual property, commodities and private real estate)¹⁵ carry certain advantages and challenges compared to the equities and corporate fixed income investment universe. In many cases, investors are majority owners or own the asset outright. Majority or full ownership stakes offer investors much greater control over the definition, application and reporting of ESG data alongside or outside existing reporting standards like that of the GRI, or use of the **Global Real Estate Sustainability Benchmark (GRESB)**, founded in 2009. The materiality frameworks used may have philosophical similarities – as in material ESG factors – but the identification of those factors may differ.

GRESB's full benchmark report (see [Figure 8.21 in Chapter 8](#)) provides:

- ▶ a composite of peer group information;
- ▶ overall portfolio key performance indicator (KPI) performance;
- ▶ aggregate environmental data in terms of usage and efficiency gains;
- ▶ a GRESB score that weights management, policy and disclosure, risks and opportunities and monitoring and Environmental Management Systems (EMS);
- ▶ environmental impact reduction targets; and
- ▶ data validation and assurance.

This type of report depends heavily on companies participating in the GRESB reporting assessment process.

Looking at commercial and residential real estate historically, the sectors arguably had little regard for ESG factors (especially pre-2009 before GRESB). Often the tenants and operators might think differently to the owners and constructors (sometimes called a 'split incentive problem') as tenants must pay ongoing energy bills, which constructors do not.

Buildings also have a carbon footprint. An integrated ESG view may look at reducing the carbon footprint through building with more efficient materials and standards and hence, lowering the risk of impact from carbon prices or deriving gains from energy efficiencies.

Like unlisted credit and real asset private markets, ESG integration in private equity faces a number of challenges, foremost being the lack of public transparency, established reporting standards, regulatory oversight and public market expectations around ESG. There are current initiatives aiming to address these challenges, such as the PRI's reporting framework for infrastructure.¹⁶

In addition, smaller, private companies are often capacity-challenged by ESG reporting requirements. Private equity investors may have to negotiate with a strong founder or founder team.

But, early investors and significant shareholders can be strategic and long-term oriented, creating a powerful incentive to establish a strong set of ESG KPIs early in the company's life cycle; or by setting important cultural values. Some investors will perform a materiality analysis much like public equity investors might do, the same SASB framework might be used or developed via the private equity industry, e.g. the British Venture Capital Association (BVCA) *Responsible Investment Framework*.¹⁷

→ *Another way of looking at this is shown in Figure 8.21 in Chapter 8.*

Two case study examples from recent years show the role governance analysis played in:

- ▶ the IPO and valuation of Uber;¹⁸ and
- ▶ the failed IPO of WeWork.¹⁹

These examples show how ESG can add or detract value.

Asset owners may also assess private equity managers on ESG criteria especially where they might be co-investors on an asset. A typical assessment might include policy, people, process, transparency and collaboration assessments.

Discussion of ESG in fixed income and differences to equity

Historically, corporate bond practitioners adapted to meet their needs the materiality and sustainability frameworks as well as ESG techniques used by equity investors. More recently, newer techniques specifically focused on bonds have been used. This is because bonds differ by:

- ▶ credit quality;
- ▶ duration;
- ▶ payment schedules;
- ▶ embedded options;
- ▶ seniority;
- ▶ currencies;
- ▶ collateral; and
- ▶ time horizon.

Equity securities tend to not have these qualities and thus, different integration techniques are needed.

Fixed income investors in corporate bonds may use similar principles in materiality and ESG frameworks to equity investors, but adapt to where materiality is different between equity and bonds. Bond investors may find ESG factors that impact balance sheet strength (and hence, the risks of debt defaults) more material than equity investors who might be concerned more about future growth opportunities.

The opportunity side of ESG may be less relevant for bond investors as it is typically the impact of ESG factors on a company's ability to pay its debt obligations that are foremost in a bond investor's analysis. For instance, an equity investor may view a green technology acquisition more favourably than a bond investor because the equity investor is positive about future value from the technology whereas the bond investor might be worried about the amount of debt required to fund the acquisition. ESG scores (whether third party or internal) go alongside or are integrated into internal credit analysis and investment decisions.

Sovereign debt investors have started to analyse ESG, but it has not been easy to borrow the same materiality frameworks as equity or corporate debt investors. This is because some country-level factors (such as peace, corruption, ease of doing business, freedom of expression, education levels and regulatory and legal robustness) may not be material to equity or corporate bond investors. Furthermore, a material factor (such as climate or carbon policy) will interact with analysis and valuations differently. This makes turning ESG analysis into meaningful judgments on the credit ratings or spreads for sovereign nations difficult. That said, certain ESG factors (such as political risk and governance factors) have typically been integrated into sovereign debt by investors even if not explicitly labelled ESG.

Municipal credit ESG analysis can differ as well. In the municipal space (region, state or city) both the issuer's governance and management practices can be assessed as well as their:

- ▶ overall transparency;
- ▶ reporting;
- ▶ corruption levels;
- ▶ budgetary practices;
- ▶ pension liabilities; and
- ▶ contracts.

Some investors will view municipals investing for inclusive communities as lower risk investment due to the social benefits. Alternatively, there can be co-primary outcomes, where market rate returns are expected alongside social impact. This differs from social impact, which is not always expected to make market rate (risk-adjusted) returns. Environmental factors (such as the region's air quality and associated health risks for its constituents) and the quality of public infrastructure (such as wastewater treatment plants) can all pose risks that may affect an issuer's ability to repay its debt.

Overall, while there are philosophical similarities in identifying material ESG factors and then applying those to the analysis, the type of factors can differ across asset classes and the type of integration techniques can vary as well.

Challenges to ESG integration

7.1.13	Describe the challenges of undertaking ESG analysis across different geographic regions and cultures.
7.1.14	Describe the challenges of identifying and assessing material ESG issues.
7.1.15	Describe the challenges of integrating ESG analysis into a firm's investment process.

There are many hurdles and challenges for ESG integration. These include:

- ▶ Disclosure and data-related challenges, such as:
 - » data consistency;
 - » data scarcity;
 - » data incompleteness; and
 - » lack of audited data.
- ▶ comparability difficulties, such as:
 - » lack of comparability between ESG ratings agencies;
 - » comparing across different accounting and other standards;
 - » comparisons across geographies and cultures; and
 - » inconsistent use of jargon terminology.
- ▶ materiality and judgment challenges, such as:
 - » judgments that are difficult and uncertain; and
 - » judgments that are inconsistent.
- ▶ ESG integration challenges across asset classes:
 - » different types of assets and different strategies integrate ESG using different techniques.

Challenges from incomplete data sets and identifying and assessing ESG data

As can be seen from the case studies and ESG techniques, many of the processes start with data gathering and original research gathering. However, there are a few challenges:

- ▶ ESG data is not consistently reported across companies, geographies and sectors;
- ▶ most ESG data is not audited; and
- ▶ some ESG data is not easily available in public databases and is difficult to obtain.

ESG factors can be judged material and useful, but also, the data may be incomplete. For instance, carbon pollution is often judged material, but it can be measured in at least three scopes – scope 1, scope 2 and scope 3. Currently, in the top 2,000 companies in the world, there is little data on scope 3 (as of 2018, 10% of companies reported scope 3, and in 2020, this had increased to 18%)²⁰ yet there is evidence that scope 3 makes up more than 50% of the world's carbon (and GHG equivalent) pollution impact.

ESG data can be incomplete, unaudited, unavailable or incomparable between companies due to different reporting methodologies. This makes assessment of ESG factors impossible in certain situations. A lack of data or a company unwilling to disclose information can make identification of relevant ESG factors difficult.

Data disclosure challenge

There is an ongoing debate over ESG data disclosures at a company level. These disclosures vary between companies and regionally. There are ongoing efforts via organisations such as SASB or the GRI, and continuous evolution from the IASB on 'broader corporate reporting'²¹

Surveys suggest (see [Section 1](#)) that a range of investors view ESG disclosure at companies as inadequate. This may partly be because investors and management teams view ‘materiality’ differently and may also have conflicting aims. Investors may claim that it is hard to assess a material piece of ESG information if there is no data disclosure. Companies can argue that the vast range of possible ESG data and the differing demands of investors, stakeholders and rating agencies make the resource demands unreasonable.

A further challenge is that there is no consensus agreement on the details of what good ESG disclosure may look like (although again see SASB’s evolving work here) and that this may differ by strategy and asset class. Historically, public markets disclosure has been higher than private markets disclosure. The needs of fixed income and sovereign bond investors can (and do) differ from equity investors.

- See earlier parts of this section for more information on company disclosure.

Comparability and materiality judgment challenges

ESG ratings agencies use different techniques and assessments so that the ratings are not easily comparable. ESG ratings do not correlate like bond credit ratings, nor do agencies use the same methods of scoring.

Judgments on ESG materiality may differ between analysts. Many ESG terms are used inconsistently and are difficult for non-specialists to interpret.

These differences can be magnified with cultural or regional differences. For instance, different countries have different governance best practices or differing views on risk and materiality. Japanese companies have a much lower number of independent directors on their boards than the European or US average, which is reflected in the *Corporate Governance Code of Japan*. Different countries may also put different weights on social factors (e.g. US companies are less concerned about having a policy on work or labour unions than German companies).

Where materiality can be judged, it can be hard to assess the level of impact and there is uncertainty on how ESG factors interact with financial performance over time.

There are many jargon terms in the field (to name a few: responsible, impact, sustainable, socially responsible, and ethical and green investment). Many of these terms are not used consistently by specialists and are confusing to non-specialists.

Integration challenges

Due to the different third-party databases, many quantitative ESG factors are not agreed upon, and the data is relatively short run. It is also uncertain to what degree the ESG factors may correlate with other established quantitative factors, such as ‘quality’, ‘value’ or ‘momentum’. This means index tilting strategies may not reflect desired factors appropriately.

Many investment firms have separate ESG analyst teams. This can move ESG expertise away from investment decision makers and therefore, provide a challenge to integration. It may be that ESG analysts are more junior (potentially driven by the only recent focus on this area at, for example, business school level) and therefore, lower weight is put on their views and providing a challenge.

In fundamental active strategies, many ESG factors are difficult to judge and quantify. Impacts to cash flows, growth rates or DCF assumptions are also hard to express. As noted earlier, in quantitative strategies, limited consensus remains, and historical data provides an integration challenge.

- See Chapter 8 for a detailed discussion on this topic.

Investment firm culture challenge

There remains a significant number of investment professionals who do not integrate ESG or believe ESG has limited financial impact; this can be challenging for teams and within firms. Firms may not have significant resources to buy third-party ESG data, or a firm's global nature may make culturally different attitudes to ESG factors difficult to integrate globally across the firm.

ESG integration is often different across asset classes, which can make it difficult to be consistent or to explain across a firm. Investors are likely to make differing judgments on materiality or weight factors, which causes a lack of comparability or a difference of opinion, even within firms.

There are typically additional resources needed for ESG integration, finances and personnel, which raises both financial and operational challenges within firms.

ESG integration techniques have only recently started to become part of the curriculum at business schools and within universities. Typically, this means that investment professionals would not have had as much detailed training on how to deal with the challenge of integration.

Despite advances in techniques and understanding, there remain significant challenges to ESG integration.

Criticism for ESG integration

One of the most common criticisms of ESG investing is the difficulty for investors to correctly identify, and appropriately weigh, ESG factors in investment selection. Critics express concerns about the precision, validity and reliability of ESG investment strategies, and tend to express four concerns:

1. **Too inclusive of poor companies.** ESG mutual funds and exchange-traded funds (ETFs) often hold investments in companies that may be acknowledged as 'bad actors' in one or more of the ESG spaces
2. **Dubious assessment criteria.** The criteria used for selecting ESG factors are too subjective and can reflect narrow or conflicting ideological or political viewpoints. Non-material or socio-political factors may be over-emphasised. Materiality assessments might be considered flawed.
3. **Quality of data.** The information used for selecting ESG factors often comes (unaudited or assured) from the companies themselves. This complicates the ability to verify, compare and standardise this information.
4. **Potential lack of emphasis of long-term improvements.** Some financial advisers screen investments first for performance and only after that for ESG factors. This initial emphasis on performance can exclude companies with high ESG practices that focus on longer-term performance.

Finally, some critics would argue that evidence for the benefits of ESG are mixed or not proven.²² These critics suggest the time horizon for assessing ESG is too short to prove benefits. Critics also point out time periods where certain often excluded sectors, for example, tobacco, perform well as evidence that ESG detracts value. Note – as discussed earlier, exclusionary strategies are only one type of strategy, which some investors do not consider part of ESG integration, but as a separate type of investment process.

Range of ESG integration databases and software available

7.1.16	Explain the approaches taken across a range of ESG integration databases and software available, and the nature of the information provided.
7.1.17	Identify the main providers of screening services or tools, similarities and differences in their methodologies, and the aims, benefits and limitations of using them.
7.1.18	Describe the limitations and constraints of information provided by ESG integration databases.

Typical mainstream investment research often includes an ESG or sustainability offering, and most major investment research departments (the ‘sell-side’) will have analysts producing research in this area.

One way of classifying providers is by business type:

- ▶ **for-profit large providers** that offer multiple ESG-related products and services, as well as non-ESG-related products and services (for example, MSCI, S&P, Fitch and Moody’s);
- ▶ **for-profit boutique providers** that offer speciality ESG products and services (for example, RepRisk, Truvalue Labs (prior to October 2020 acquisition by FactSet) and ISS (prior to the November 2020 acquisition by Deutsche Börse AG)); and
- ▶ **non-profit providers** that offer ESG-related products and services (for example, Carbon Disclosure Project (CDP) and World Bank, with the World Bank’s ESG data portal; both these services are free to the general public and in the public domain).

Another way of thinking about the services is by type of product or service, this is a non-exhaustive list:

- ▶ **ESG data** – quantitative or qualitative information on the environmental, social, economic and corporate governance practices of companies.
- ▶ **ESG ratings** – quantitative or qualitative evaluations of a company, country, financial product or fund, based on a comparative assessment of their approach, disclosure, strategy or performance on ESG issues. Different methodologies are discussed below.
- ▶ **ESG screening** – tools that evaluate companies, countries and bonds based on their exposure or involvement-specific factors, sectors, products or services.
- ▶ **Voting and governance advice** – typically, proxy vote advisory services. These include voting guidelines on governance and other proxy voting items, including compensation and board directorships.
- ▶ **ESG benchmarks and indices** – a set of securities (stocks, bonds, etc.) designed to represent some aspect of the total market by including some ESG criteria into selection.
- ▶ **ESG news and controversy alerts** – a company or a country conducts assessments that highlight events, behaviours and practices that may lead to reputational and business risks and opportunities.
- ▶ **Integrated research** – typically sell-side (investment bank or broker reports) research of contextualised, data-informed analytical opinion designed to support investment decision-making.
- ▶ **Advisory services** – ESG strategy, integration, investment process, reporting and corporate advice.

Within this there are also many specific ESG-related services, for instance:

- » class action litigation;
- » **Sustainable Development Goal (SDG)** reporting and alignment;
- » carbon and water analysis;
- » norms and sanctions;
- » policy development;

- » real estate assessment;
- » factor databases;
- » supply chain assessment; and
- » assurance services.

Table 7.3 provides a non-exhaustive list of ESG ratings and database providers. New entrants, as of 2020, are continuing to appear.

→ *MSCI ESG ratings and Sustainalytics ESG ratings are examined in greater detail later and SASB materiality maps were examined in Section 3. See also Table 8.5 in Chapter 8.*

Table 7.3: SUMMARY OF MAJOR ESG SERVICE PROVIDERS

Please note: This summary is provided for reference only and will not be assessed in the ESG examination.

PRODUCT	BLOOMBERG	MORNINGSTAR/SUSTAINANALYTICS	DEUTSCHE BOURSE (ISS)	REPRISK	FACTSET (TRUVALUE LABS)	MSCI	LSE (FTSE RUSSELL)	REUTERS (REFINITIV)	MOODY'S (VIGEO EIRIS)	CDP	REAL IMPACT TRACKER	MERCER/OTHER INVESTMENT CONSULTANTS	WORLD BANK	
Data	X	X	X	X	X	X	X	X	X	X			X	X
Ratings	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Screening		X	X			X								
Voting advisory				X										
Benchmarks	X		X			X	X		X				X	
Controversies	X	X	X	X	X	X		X	X				X	

Source: Yeoh, Benjamin (2020), also see *Study on Sustainability-Related Ratings, Data and Research* (2020).²³

Many ESG tools look at a broad range of ESG factors, although some such as CDP, which has an environmental focus, are more specific. One challenge is that the agreement or correlation between the various ratings agencies is low.

- A study by Chatterji et al. finds an approximate 0.3 correlation.²⁴ (Or more technically, this analysis found pairwise tetrachoric correlations for three years among the six raters, with a mean correlation of 0.30 (about 2 standard deviations). However, this also included some negative ones' correlations, meaning what one rater found responsible another found 'irresponsible'.) A 2019 study by Gibson et al. shows a range of correlations (see **Table 7.4**).
- Yet another study by Berg et al. shows a range of correlations as well: Berg looks at a dataset of ESG ratings from six different raters – namely, KLD (MSCI Stats), Sustainalytics, Vigeo Eiris (Moody's), RobecoSAM (S&P Global), Asset4 (Refinitiv) and MSCI – the correlations between the ratings are on average 0.54 and range from 0.38 to 0.71.

Berg notes:

“...This means that the information that decision-makers receive from ESG rating agencies is relatively noisy.”²⁵

Berg further suggests:

“Three major consequences follow:

First, ESG performance is less likely to be reflected in corporate stock and bond prices, as investors face a challenge when trying to identify outperformers and laggards. Investor tastes can influence asset prices, but only when a large enough fraction of the market holds and implements a uniform nonfinancial preference. Therefore, even if a large fraction of investors have a preference for ESG performance, the divergence of the ratings disperses the effect of these preferences on asset prices.

Second, the divergence hampers the ambition of companies to improve their ESG performance, because they receive mixed signals from rating agencies about which actions are expected and will be valued by the market.

Third, the divergence of ratings poses a challenge for empirical research, as using one rater versus another may alter a study’s results and conclusions. Taken together, the ambiguity around ESG ratings represents a challenge for decision-makers...”²⁵

Most of the tools are only available commercially. However, the completeness of coverage varies substantially across ESG tools. The correlations may well change with time, as providers evolve the way ratings are produced. For example, Sustainalytics experienced a major change in its ESG ratings system in 2019 and all main providers are currently evolving their processes, annually at least. This is expected for some time to come.

This evolving process also make historic comparisons difficult. The different methodologies may also mean like-for-like comparisons are not being made in the correlations between rating agencies.

Many factors are still debated by investors:

- ▶ what the correlations are;
- ▶ the timeframe over which they are studied; and
- ▶ the relevance of any potential correlations (could be spurious data-mined).

Practitioners debate how important strong correlations are:

- ▶ On one hand, high correlations could lead to group think and a lack of rigorous thinking. Some think this was one of the problems with credit rating agencies’ (CRAs) (highly correlated) assessment of mortgage-backed bonds in the financial crisis (2007–2009). To some, a low correlation is a healthy and useful outcome from ESG ratings providers noting the distinction between ratings and raw data.
- ▶ On the other hand, simplicity and correlation may bring credibility to ESG ratings as a discipline and give more consistent messages to companies. As described in the quantitative investment sections, quantitative investors use this data in a different fashion to fundamental active investor judgments.

This area is expected to be discussed for some time to come.

Table 7.4: ESG RATING CORRELATION AMONG SIX THIRD-PARTY DATA PROVIDERS

	N (1)	MEAN (2)	MEDIAN (3)	STDDEV (4)	PEARSON CORRELATIONS				
					(5)	(6)	(7)	(8)	(9)
<i>Panel A: Total rating</i>					ASSET 4	SUST.	INRATE	BLOOM.	KLD
Asset 4	31424	0.501	0.501	0.289					
Sustainalytics	32703	0.501	0.499	0.289	0.762				
Inrate	25945	0.501	0.534	0.284	0.233	0.303			
Bloomberg	32410	0.501	0.501	0.289	0.749	0.708	0.122		
KLD	32485	0.501	0.507	0.288	0.584	0.619	0.290	0.538	
MSCI IVA	32450	0.501	0.502	0.289	0.418	0.460	0.319	0.308	0.452
Average correlation								0.458	
<i>Panel B: Environmental Pillar</i>									
Asset 4	31261	0.501	0.501	0.289					
Sustainalytics	32532	0.501	0.501	0.289	0.710				
Inrate	25880	0.501	0.518	0.286	0.305	0.488			
Bloomberg	28258	0.501	0.501	0.289	0.651	0.566	0.206		
KLD	32403	0.501	0.498	0.281	0.629	0.654	0.422	0.472	
MSCI IVA	32361	0.501	0.502	0.289	0.174	0.325	0.403	0.140	0.284
Average correlation								0.429	
<i>Panel C: Social Pillar</i>									
Asset 4	31424	0.501	0.501	0.289					
Sustainalytics	32703	0.501	0.504	0.289	0.617				
Inrate	25945	0.501	0.522	0.288	0.133	0.143			
Bloomberg	32322	0.501	0.507	0.288	0.682	0.530	0.061		
KLD	32485	0.501	0.505	0.288	0.397	0.423	0.128	0.302	
MSCI IVA	32450	0.501	0.500	0.289	0.282	0.323	0.236	0.207	0.351
Average correlation								0.321	
<i>Panel D: Governance Pillar</i>									
Asset 4	31424	0.501	0.501	0.289					
Sustainalytics	32703	0.501	0.504	0.289	0.312				
Inrate	25945	0.501	0.502	0.283	0.297	0.401			
Bloomberg	32410	0.501	0.487	0.283	0.421	0.340	0.343		
KLD	32485	0.501	0.489	0.237	0.059	0.034	0.083	0.095	
MSCI IVA	32450	0.501	0.501	0.288	0.141	0.129	0.144	0.045	0.152
Average correlation								0.200	

Source: Gibson, R. et al.²⁶

The sources of information used to assess ESG investments also vary across the ESG tools. Information can be collected:

- ▶ directly via:
 - » surveys;
 - » company communication;
 - » company reports;
 - » presentations; and
 - » public documents; or
- ▶ indirectly via:
 - » news articles;
 - » third-party reports; and
 - » analysis.

The assessments can be given in a raw form, or used to determine index weights or processed to determine specific ratings and scores.

The Berg study²⁵ also argues that low correlations pose these challenges:

- ▶ Sustainability performance is less likely to be reflected in company stock and bond prices. Investors are not easily able to identify sustainability outperformers and laggards. Low correlation may have consequences for investors who rely on one single ESG rating in their investment strategies and fail to account for sustainability-related rating disagreement among rating and data providers.
- ▶ Divergence restricts companies from being able to improve their ESG performance because they receive mixed signals from ESG rating providers about which actions are expected and will be valued by the market.
- ▶ Low correlation poses a challenge for academic and empirical research. Using one rating provider versus another may alter a study's conclusions.

On the other hand, some investors argue variability in methodology and output to be a source of investor insight and beneficial for investors, as long as there is transparency on how they have been derived.

Another consideration when thinking of providers is where they have come from and which stakeholders are served. Here you might have:

- ▶ **'Traditional' ESG data and research providers:** Founded from the SRI industry to provide investors with sustainability data and ratings about primarily large, publicly traded companies. More recent consolidation activity has turned these providers into conglomerates with different offerings and research focuses. The level of automation is low or medium, as human judgment is still used.
- ▶ **'Non-traditional' ESG data and research providers:** More recently, non-traditional providers, such as credit-rating agencies (S&P and Moody's), entered the space by acquiring Trucost (2016) and Vigeo Eiris (2019), respectively. As above, the level of automation is low or medium, as human judgment is still used.
- ▶ **AI or algorithm-driven ESG research:** Launched more recently, in the last five years, these providers use new technologies, such as Natural Language Processing, to identify ESG risks and opportunities from web-based sources. The level of automation is high.

Some of these providers may serve corporate issuers and bank and insurance companies as well as asset owners and asset managers. One way to think about these ratings and data providers is through their broad styles and techniques:

- ▶ raw or partially transformed data (e.g. absolute carbon emissions, or carbon intensity which is emissions or sales);
- ▶ ratings based on backward looking reported data;
- ▶ ratings or information based on internet, third-party and web-reported data, aiming to be current; or
- ▶ aggregators of data or ratings.

The considerations that investors could take into account when choosing providers include:

- ▶ the number of companies covered;
- ▶ the length of history of datasets;
- ▶ the languages used;
- ▶ the stability of methodology;
- ▶ the regularity of updates;
- ▶ asset class coverage;
- ▶ the quality of methodology;
- ▶ the range of datasets; and
- ▶ the range of tools and services offered.

Currently there is limited consensus amongst investors on ESG ratings. In that sense, it is similar to current discussions on sell-side equity research. This is investment research typically generated by investment banks. These sell-side ratings (e.g. buy/sell/hold, overweight/underweight versus index; or target prices and credit spreads) are not expected to agree. The rating divergence in opinions can be helpful for investors in decision-making as it allows both positive and negative arguments to come to light and to be assessed. However, this is somewhat different to CRAs, which typically have highly correlated credit ratings.

One gap is the forward-looking forecasts for ESG data or ratings. Such forecasts are still typically performed by sell-side (at investment banks) and buy-side (at asset management firms) analysts, although not necessarily in a systematic fashion.

Areas of focus for investors compared to rating agencies

Investors often focus on these types of issues over and above what rating agencies do:

- ▶ sub-sector and company-specific material issues;
- ▶ a focus on product impacts and actual financial (sales) or extra-financial performance (e.g. customer retention);
- ▶ more focus on interpreting raw data; and
- ▶ drawing deeper insights into associated financial risks for companies.

Investors may focus less on company policies and common disclosures, investors may also focus less on history and put a stronger emphasis on future looking factors.

4**MUTUAL FUND AND FUND MANAGER ESG ASSESSMENT**

Morningstar sustainability ratings and Real Impact Tracker (RIT) are examples of ESG fund and fund manager assessments.

Example**Morningstar's sustainability ratings**

As of 2021, Morningstar covered over 20,000 mutual funds and over 2,000 ETFs with a 1 to 5 score (the system was started in 2018). It uses company-level ratings from Sustainalytics (now part of Morningstar) to develop its fund ratings and the headline rating is freely available. Morningstar takes a 'holdings-based approach'—a weighted average of portfolio companies' ESG scores. No credit or assessment is given to managers' efforts on shareholder engagement and public advocacy or on their sophistication, culture and investment strategy. One key critique on this approach is that holdings-based approaches ignore intentional ESG strategy and the approach is necessarily backward-looking.

Given that the correlation of the two major rating systems (Sustainalytics and MSCI) is low and variable and Morningstar uses only the Sustainalytics data for its calculations, there is limited comparability between the ratings and others.

Example**Real Impact Tracker**

The RIT takes a more holistic approach, doing deep dive due diligence on its manager assessments. Its 'certified community' is publicly available with details of the assessment undertaken.

Rather than use a 'holdings-based approach', the RIT will assess:

- ▶ culture;
- ▶ philosophy;
- ▶ process impact; and
- ▶ public policy efforts.

Example**Mercer's point system**

Investment consultants, such as Mercer, will also rate the ESG capabilities of fund managers, which is often done at a fund strategy level. Mercer has a 4-point score, where its highest rating of ESG = 1 is given to less than 5% of investment teams.

Potential features that Mercer's investment consultants look for are:

- ▶ A demonstration that ESG factors are featured in investment teams' decision-making process and corporate culture.
- ▶ An effort has been made to build ESG factors into valuation metrics, using the investment team's own judgment about materiality and time frames.
- ▶ There is a long-term investment horizon and low portfolio turnover.
- ▶ Ownership policies and practices include sufficient oversight, integration with investment decision-making and transparency.
- ▶ For alternative assets, there is evidence of pursuing best practices in transparency and evaluation, with monitoring and improvement of ESG performance as relevant for portfolio companies and sectors.
- ▶ There is a demonstrated willingness to collaborate with other institutional investors to improve company, sector or market performance.
- ▶ Commitment to ESG integration can be seen across the organisation.

Source:-Adapted from Mercer (2018).²⁷

The aim of these type of ESG assessors is to form a view on the ESG integration practices and processes of different fund managers and strategies to enable end users, both retail and institutional, to match ESG and investments needs with funds providing the best fit services. Their limitations include:

- ▶ different methodologies (some focus on investment processes, others on portfolio holdings);
- ▶ the use of different data sources or rating providers;
- ▶ the unaudited limited data sources;
- ▶ the time resource to make the comparisons; and
- ▶ the relatively non-transparent and non-comparable way these assessments are performed.

5 COMPANY ESG ASSESSMENT AND RATING

In 2018, MSCI and Sustainalytics had the largest market shares in company-focused ESG ratings. Both rating agencies have grown by acquiring other ESG ratings providers over the last decade. However, new entrants are still entering.

There are several types of assessment, including:

- ▶ fundamental including risk, business model, policies and preparedness;
- ▶ operational including carbon impact, water stress and human capital management;
- ▶ disclosure-based assessment; and
- ▶ algorithm and news-based including controversies (Truvalue Labs and RepRisk predominantly use this assessment whereas fundamental, operational and disclosure-based are used by most ratings companies).

A few ESG ratings companies have attempted to look at the opportunities side of ESG factors as well.

As noted earlier, each provider has different methodologies and differing benefits and limitations. There is limited consensus between the databases.

Typically, a rating provider will establish a methodology to inform the rating by identifying a set of relevant ESG issues, assigning indicators to evaluate performance on those issues and then developing a weighting and scoring process to evaluate a company.

- See Appendix 7.1 for further details on the Sustainalytics and MSCI Methodologies.

Most establish systems whereby a certain level of performance on an issue is assigned a certain number of points or a grade. Points or grade assignments may be attached to a quantitative metric (e.g. number of female directors or emissions reduced) or qualitative assessments (e.g. a ‘high’, ‘medium’, or ‘low’ assessment based on policies, procedures or performance). Topics are also often assigned a given weight establishing different levels of influence for different topics or sets of topics on the final rating.

Mostly ESG ratings are based on historical company data and alternative data sources (e.g. media sources). Ratings agencies try to synthesise that data to provide investors with information to inform investment decisions. Some ESG ratings providers are also developing measures of ‘climate risk’ that attempt to assess forward-looking risk informed by the Paris Agreement and initiatives, such as the Task Force on Climate-related Financial Disclosures (TCFD).

To produce a rating, a provider will typically perform the following tasks.

1. Identify indicators that determine which ESG indicators are most material to the sector in question (see materiality mapping in [Section 3](#) of this chapter).
2. Gather a set of data points for the identified indicators on the company in question from company public disclosures, survey responses, unstructured company data or third-party data. Assess the data gathered for consistency and on occasion, estimate any missing data points (not all rating providers estimate data points).
3. Quantify qualitative data points through scoring or ranking methodologies; score or evaluate quantitative data points through scoring or ranking methodologies. Combine these data points with regard to the predetermined weighting system applied to the indicators to create either, or both:
 - ▶ a sector-relative score for a company that assesses its performance relative to its peer group; or
 - ▶ an absolute score.

ESG factor identification is up to the ratings provider and thus, dispersal of opinions starts at this step even before consideration of different weighting and scoring methodologies.

There are several ratings providers although historically, MSCI and Sustainalytics have had some of the largest market shares in the equity rating space. There are also country- or more bond-specific services available at, for instance, the World Bank.

We are not elevating one method over another and the methodologies have great detail and differences.

- This is looked at in [Appendix 7.1](#) where we consider the approaches of two ESG risk rating systems – Sustainalytics' and MSCI risk ratings.

Further detail is also available from the EU's *Study on Sustainability-Related Ratings, Data and Research* (2020).²³

ESG index providers

The likes of FTSE Russell and MSCI provide ESG index benchmarks. These indices can be custom built to an investor's preferences (typically at institutional level) and are generally commercially available in more standard versions.

1. The index typically relies upon rules-based criteria assessed on underlying ESG scores or metrics.
2. These then go into a formula to tilt company weightings or exclude entire companies based on ESG scores and hurdles.
3. These scores may be sourced by other ESG service providers. For instance, Sustainalytics started providing FTSE Russell with underlying data from 2019 (and had provided Morningstar with data before this).

These indices can be used as benchmarks for fund managers to be measured against, or as model funds for investors to directly invest into in a form of beta or passive management.

These types of index have been developed into different ranges of ‘ESG ETFs’. ETFs are made up of a basket of securities (stocks, bonds and other assets).

These ETFs follow the underlying index or basket construction in a rules-based fashion. These can be thematic, namely investing only in certain sectors, or tilt weightings based on ESG scores, as described earlier. These scores maybe be data-based (for example, carbon emissions) or ratings-based (for example, on a provider’s ratings), or a mix of the two. There continue to be debates as to how well these ETFs capture potential ESG factors.

6 PRIMARY AND SECONDARY ESG DATA SOURCES

7.1.19 Describe primary and secondary sources of ESG data and information.

Many ESG databases provide secondary ESG data or ratings. These are assessments transformed by a process of scoring or a formula from a primary data source. Some providers (e.g. Bloomberg) will provide primary data sourced from company reports in an easier or consistent form to digest, along with a secondary rating (e.g. Bloomberg Disclosure score).

Primary data can be sourced from companies directly:

- ▶ surveys;
- ▶ direct company communication; and
- ▶ company reports, presentations and public documents.

These public documents may be sourced from non-profit organisations, such as the *UN Global Compact* or the GRI, as well as the companies’ own websites. A primary source may be audited or not audited, but as of 2020, many ESG performance indicators are not audited (although the number has increased since 2018 and is expected to continue to increase – verification and auditing of carbon emissions being one important data point that is increasingly audited).

Alternatively, the source may be indirect, via:

- ▶ news articles;
- ▶ third-party reports and analysis; and
- ▶ investment and consulting research.

Indirect assessment can be via a third-party source (such as Glassdoor for employee satisfaction data and scores, which are directly sourced from employee surveys). They could also come from government, regulatory bodies or non-governmental organisation (NGO) reports into different segments of ESG.

Some of this data or assessment may be used widely between organisations. For instance, CDP carbon data is used as an input to many of the major ESG ratings providers, such as FTSE Russell, MSCI and Sustainalytics.

Secondary data sources typically involve transforming the primary ESG data in some way and creating new scores, assessments or ratings based on these transformations. These are available from commercial organisations, both financial and non-financial, as well as regulators, NGOs and other non-profit or charitable bodies.

7 OTHER USES OF ESG AND SUSTAINABILITY SYSTEMS DATA

7.1.20 Describe other uses of ESG and sustainability systems data.

Looking at all aspects, it is clear to see that ESG data has wide and varied uses within investment. This section presents some other techniques that can go beyond a company assessment but are useful for companies and analysts to consider.

‘Big data’ analysis of multiple ESG factors

As can be seen in [Section 2](#) of this chapter, regarding quantitative analysis, ESG data sets are being used by algorithms and natural language processes to determine company quality, reputational risk and many forward-looking aspects of business strength and valuation. These trends can also be analysed at industry or country level. Companies themselves are starting to use big data analysis of various ESG factors in their strategic and operational analysis.

→ *More detailed information on this can be found in Chapter 8.*

Resource, supply and operational risk mitigation

Assessment here is not only at a company level, but can be carried out at a systems or sector level. This would include assessments of supply chain risk (e.g. from forced labour or supply constraints) or policy changes (e.g. on carbon pricing or water usage).

These risks may include climate adaptation and transition risk to physical infrastructure or location of human resources in risk areas – environmentally or politically.

This then ties into resource-, supply- and operations-related decision-making in terms of investments and capital allocation, where investors and companies might decide to invest further money (e.g. low-carbon technology) or withdraw further funding (e.g. thermal coal mines).

Modelling future sustainability scenarios, including climate change, wage growth and social effects

Future scenarios can be useful at the country-, industry- or company-level, as well as for investors. One example is climate change scenarios. One set of scenarios examines different policy interventions (e.g. levels of carbon tax). These different policy assumptions can then lead to contrasting impacts from varying levels of warming on fires and storms. These natural disasters could then impact companies (for example, with insurers and their infrastructure) as well as countries via human migration. This type of data can be used to guide sustainability strategy and manage risk.

The World Economic Forum (WEF) shows two examples of risk mapping at this level (see [Figures 7.6](#) and [7.7](#)). Furthermore, the analysis in [Figure 7.7](#) would be considered by some to be a form of risk mapping.

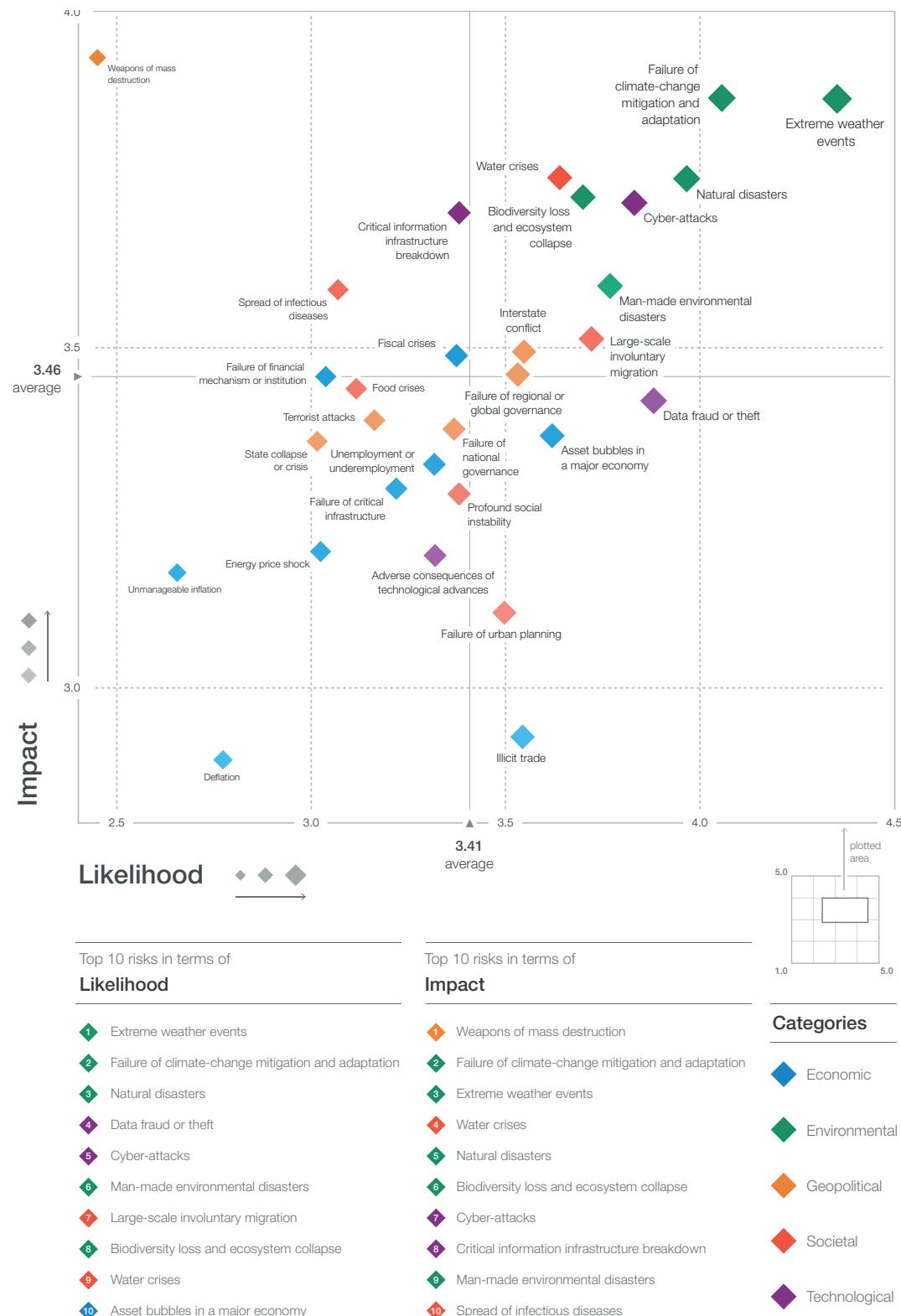
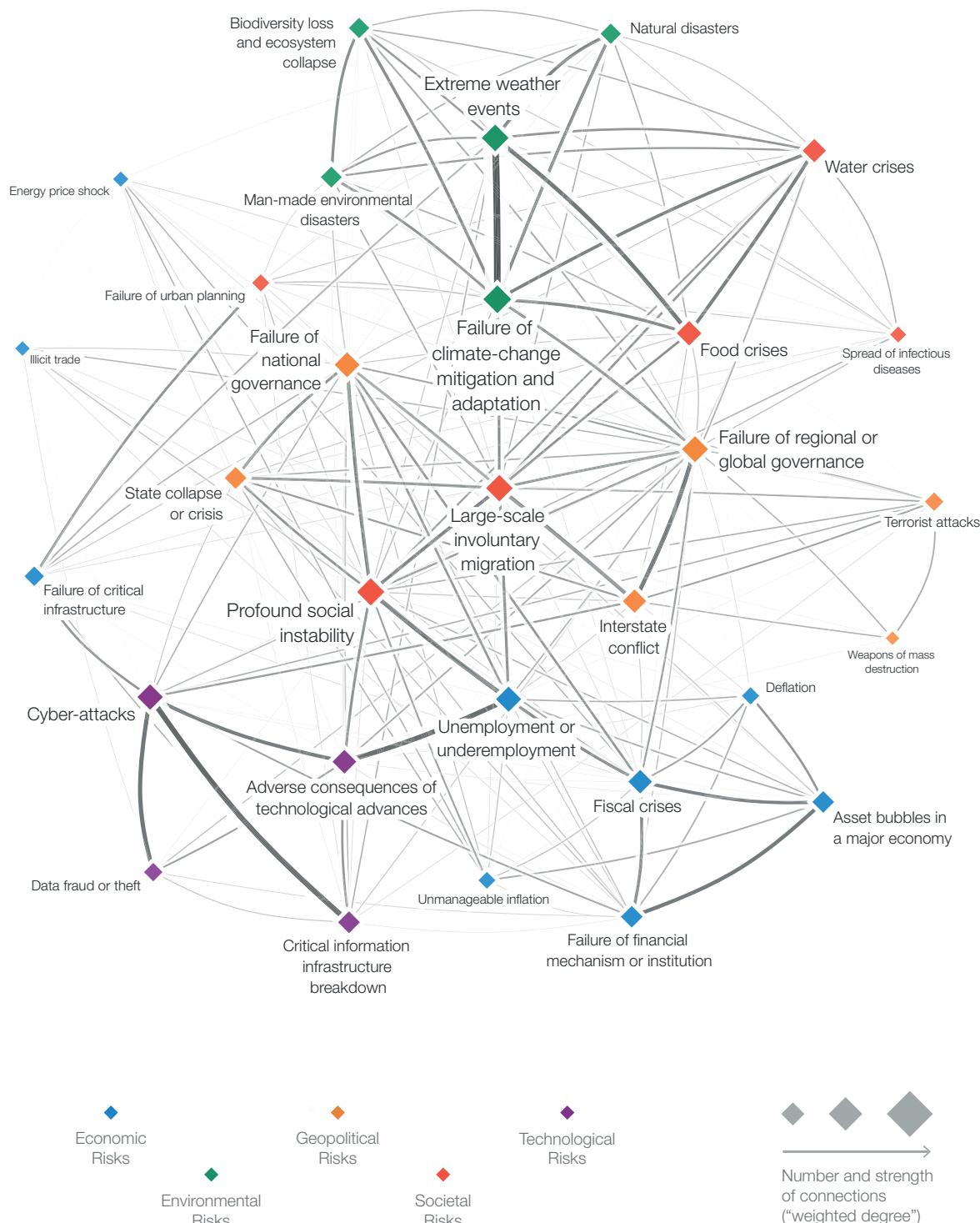
Figure 7.6: THE GLOBAL RISK LANDSCAPE 2019Source: WEF.²⁸

Figure 7.7: THE GLOBAL RISK INTERCONNECTIONS MAP 2019Source: WEF.²⁹

→ See Section 3 for more on risk-mapping.

Real-time dynamic analysis

The analysis at the frontiers of data science is being extended to real-time analysis. For instance:

- ▶ using geospatial data to track:
 - » de-forestation;
 - » mining;
 - » construction;
 - » shipping; and
 - » traffic; or
- ▶ using natural language processes to track social sentiment on the internet.

Overall, ESG investment analysis does not occur in a vacuum. The techniques and analysis are intersectional with the real world, as well as with the impact and risk on companies and countries.

8 FIXED INCOME, CREDIT RATING AGENCIES AND ESG CREDIT SCORING

7.1.21 Explain how Credit Rating Agencies (CRAs) approach ESG Credit Scoring.

The direct physical infrastructure impact of climate change, corporate scandals and the importance of human capital are ESG risks that impact bonds. These are influenced by oversight, transparency and accountability.

ESG integration techniques can extend across asset classes. This section concentrates on the fixed income asset class.

Broadly speaking, ESG factors can affect the price performance of a bond and its credit risk at different levels.

- ▶ **Issuer and company level:** These are risks that affect a specific bond issue and not the whole market. They are related to factors such as the governance of an issuer, its regulatory compliance, the strength of its balance sheet and company-specific items, such as brand reputation. For example, the yield on the corporate debt of the car manufacturer Volkswagen rose and stayed high for a prolonged period of time in the aftermath of the fraudulent emission scandal (see [Chapter 1, Section 3](#) for more information on this).
- ▶ **Industry and geographic level:** These risks stem from wider-ranging issues affecting the entire industry or region. They can be related to regulatory and legal factors, technological changes associated with the business activity the company is involved in, and the markets it sources or sells to. For example, the idea that utilities are relatively more exposed to climate change risks than media companies.

For some investors, there is an assumption that some ESG factors may impact a bond's price performance, but they may not actually influence an issuer's creditworthiness. This is because an ESG factor might not be considered to impact bankruptcy risk, even if it might have a potential impact on price performance. This would highlight a difference between a rating analysis and an asset valuation.

Good ESG risk management not only affects asset prices, but can fundamentally protect people's lives. For instance, nobody was injured in the 2013 landslide at a Rio Tinto mine in Utah, USA. Rio Tinto's laser scanning system sent early warning signals, enabling a prompt evacuation of the site. On the flip side, the recent Vale dam failure in Brazil in 2019 cost many lives.

Continuing evolution for credit and ESG since PRI releases

Practice in the area of credit and ESG has evolved in the last few years. By 2020, CRAs are in a different place than when the first observations were made by the PRI in 2016/17, which was when the PRI's *Statement on ESG in credit risk and ratings³⁰* and its report on CRAs were both released.

The PRI Statement was designed to commit CRAs and fixed income investors to incorporate ESG into credit ratings and analysis in a systematic and transparent way. As of January 2021, the statement remains open for investors and CRAs to sign.

Global and regional credit ratings agencies

There are global and regional CRAs. Historically, ESG analysis was not typically considered by CRAs. But this has changed in recent years. A major evolutionary step was taken by S&P (a global CRA) when they rolled out ESG as part of their credit assessments in 2019. The World Bank also launched its Sovereign ESG database in late 2019.

Surveys from investors suggest that the **G** factor remains more important to credit investors than **E** and **S**. Credit investors argue this is because downside risk (as in bankruptcy risk and therefore, the chance of losing a credit investor's entire capital) is more important than any upside or opportunity risk. Arguably, opportunity is more important to equity investors. Upside is limited for most credit investors, but downside risk from bankruptcy will hurt returns. Credit investors view fraud prevention and governance as important factors in protecting from downside risk (negative credit events). As **G** is directly related to preventing downside risk, its direct relevance is easier to trace for credit investors.

Many of the challenges are similar to equity ESG ratings. These challenges include:

- ▶ the lack of transparency;
- ▶ inconsistent or changing methodologies;
- ▶ the use of estimated data; and
- ▶ the lack of comparability through time and between providers and companies.

The following also give some specific fixed income challenges (see also **case studies** and discussion of sovereign and fixed income expressions of ESG in **Section 3**):

- ▶ time horizon (e.g. three-month paper or 50-year bonds);
- ▶ lack of proxy vote;
- ▶ different levels of management engagement; and
- ▶ unique qualities of sovereign credit.

Corporate credit risk assessments

When assessing credit risk, pre-2016 CRAs typically did not attempt to capture the environmental, ethical or social impact of a bond issue.³¹ For example, CRAs may have somewhat ignored environmental damage measurements (e.g. CO₂ emissions of a company) or environmental opportunities.

Before 2016, when analysing a carbon-intense company, CRAs might have typically focused on other material impacts – including financial, regulatory and legal factors – that could affect the company's credit profile. By 2020 though, many CRAs look at a range of ESG factors (and judge materiality). They judge the company's response to ESG risks and 'ESG events', and link that back to potential financial and balance sheet or cash flow considerations, such as the ability to meet debt obligations.

In addition, during 2018/19, Moody's and S&P developed further ESG evaluation systems, which continue to evolve today.

Typically, CRAs assess the predictability and certainty of an issuer's ability to generate future cash flow to meet its debt obligations. To this end, they look at whether companies can sell their assets to cover obligations (and certain assets might be impaired through ESG concerns, e.g. coal assets).

The levels of litigation risk are often analysed as well, including:

- ▶ environmental litigation;
- ▶ employment litigation; or
- ▶ human rights violations (e.g. modern slavery laws).

To that degree, ESG risk, which comes to litigation, has always been incorporated into CRA analysis.

On the quantitative side, CRA analysis focuses on:

- ▶ the issuer's overall bankruptcy risk;
- ▶ the strength of its balance sheet; and
- ▶ how it compares to other issuers.

Using standard credit ratio analysis, CRAs may test:

- ▶ how ESG factors affect an issuer's ability to convert assets into cash (profitability and cash flow analysis);
- ▶ the impact that changing yields – due to an ESG event – may have on the cost of capital, depending on the share of debt used in the issuer's capital structure (interest coverage ratio and capital structure analysis);
- ▶ the extent to which ESG-related costs dent the ability of an issuer to generate profits and add to refinancing risks; and
- ▶ how well an issuer's management uses the assets under its control to generate sales and profit (efficiency ratios).

In summary, a CRA rating is typically:

- ▶ based on analytical judgment (both quantitative and qualitative), using all the information deemed material by the analysts;
- ▶ forward-looking with a varying time horizon;
- ▶ composed of dynamic and relative measures; and
- ▶ a statement of the relative likelihood of default.

An interested fixed income investor may conduct different materiality assessments or judgments to a CRA (see [case studies](#)). This is considered true of equity ESG ratings by many investors as well.

Indeed, credit investors typically use the information provided by credit ratings to help them price, trade and assess the credit risk of fixed income securities, and to determine whether these are suitable investments, but ratings are not the only input.

A combination of investor research, analysis and judgment determines the suitability of a bond investment based on a range of factors, of which credit ratings may be one. Other factors may include proprietary indicators and recommendations by security analysts. It is notable that not all credit will have a rating.

With that said, credit ratings have an important role in the credit risk assessment of a bond issue and are typically used to define and limit investment mandates set by a wide range of institutional investors. Many investors in investment grade credit have limited or no ability to invest in high-yield speculative-grade credit, for example.

Certain fixed income investors use quantitative ESG scores

Certain fixed income investors use **quantitative ESG scores (QESGs)** – not to be confused with what investors often mean by quantitative investing (see [Section 2](#)) – in their fixed income assessments. These QESGs might be based on quantitative data (such as carbon intensity) or be judgments based on data and/or policy (e.g. policy or commitment to align business model to science-based targets). Not all investors use the term and different investors may be referring to different proprietary systems when referring to QESGs.

Green bonds considered a different class of credit

Green bonds (bonds financing green projects) or bonds assessed to meet **B-corp criteria** are sometimes considered a different class of credit. Once certain ESG or sustainability criteria are met, a green bond's credit risk is often assessed in the same manner as a standard credit.

Typically, a green bond is a fixed income instrument tied to projects that create an environmental benefit. Issuers use proceeds for a variety of activities aimed at contributing to climate change mitigation, adaptation or some other environmental benefit, such as conservation or pollution control. Examples include projects associated with renewable energy, public transportation, energy-efficient buildings and manufacturing processes, agricultural land management, waste management and water management.

Often a green bond has some form of verification or assurance from a third party organisation. This organisation assures that the financing meets the criteria set out in the bond although the covenants related to this will vary by different bonds. There is still debate about what makes a bond 'green' as there is no global consensus on the types of capital projects that fit within the scope of green bonds. There are, however, several frameworks, which may start to standardise with the publication of the *EU Green Taxonomy* and with the *EU Green Bond Standard* potentially evolving in 2021.³²

Note that B-corporation certification is a private certification issued to for-profit companies by B Lab, a global non-profit organisation that verifies social and environmental performance, public transparency and legal accountability to balance profit and purpose.

Sovereign credit risk assessment

A country's competitiveness, its growth and potential growth, governance and political stability are all important ingredients of prosperity. There are many ESG factors to possibly take into account, including the availability and management of:

- ▶ resources (including population trends, human capital, education and health);
- ▶ emerging technologies; and
- ▶ government regulations and policies.

Beyond this though, a CRA is typically most interested in a government's ability to generate enough revenues to repay its financial debt obligations.

Each CRA uses a different framework when assessing sovereign debt, but typically looks at some form of:

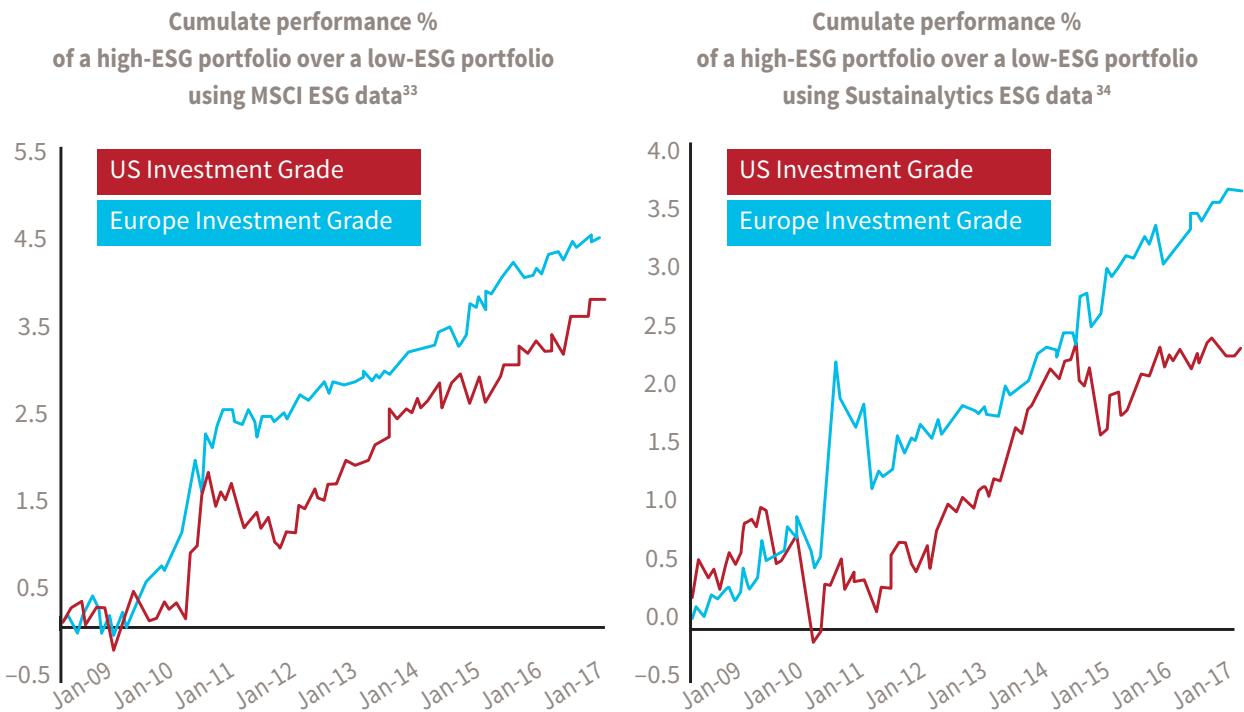
1. economic growth; and
2. governance.

The ways that **E** and **S** factors transmit to economic growth and potential can also be indirect, and the way CRAs assess this is still evolving. The **G** factor is a more obvious and direct assessment, which has been analysed historically. On **G**, each major CRA has a different framework to assess it, so in that sense, this replicates some of the difficulties around equity stock ESG ratings.

→ *Also see discussion in the case studies.*

ESG and credit ratings: Discussion over relationship

The link between ESG ratings and credit ratings is still hotly debated amongst investors. Proponents might point to a Barclays' study (see [Chapter 8](#)) looking at a high ESG portfolio versus a low ESG portfolio using two different ESG data sets (MSCI and Sustainalytics).

Figure 7.8 INVESTMENT-GRADE BOND PORTFOLIO PERFORMANCE (HIGH ESG OVER LOW ESG)Source: Barclays.³⁵

The case for sustainable bond investing strengthens, but critics would point out the flaws of correlational studies as well as the short 2009 to 2018 time period. Critics further point out that the factor attributions post-2008/09 (the financial crisis) and some ESG ratings correlate with quality factors (although not all).

Portfolio managers are developing more sophisticated approaches beyond simple ESG tilts. [Figure 8.13](#) in [Chapter 8](#) illustrates some of the ratings distribution features developed by a fixed income specialist asset manager within its portfolio ESG evaluation framework. The framework uses third-party ESG data, but combines the data to produce proprietary ESG metrics for that firm including a fundamental, absolute-oriented ESG rating and a relative investment ESG score. The internal investment teams can see an ESG risk from the single issuer level to the portfolio level which is a value added part of the process.

It is possible to see the impact in the [credit default swap \(CDS\)](#) market as well as on a single issuer basis, for instance, with Volkswagen and emissions testing.³⁶ This would be an argument for the impact an ESG event can have on CDS.

However, the timing of subsequent CDS does not perfectly correspond to when all the information was first released. The lag in timing might suggest inefficient markets or the lagged delays that market participants have in assessing material ESG information into CDS prices.

The research on ESG and credit is historically less well developed than in equity, but interest continues to grow and techniques are developing, with CRAs recently embedding ESG into their processes. There is some evidence that ESG ratings and CDSs may have a relationship. Still, the overall principles of gathering ESG data or ratings, assessing material ESG factors and then embedding them into asset assessment and valuation hold.

Potential bias in ratings

ESG ratings in the credit area may suffer bias as we observe in other asset classes. There are three key types of bias typically encountered.

1. **Company size bias**, where larger companies may obtain higher ratings because of the ability to dedicate more resources to non-financial disclosures.
2. **Geographical bias**, where there is a geographical bias toward companies in regions with high reporting requirements or some other cultural factor (e.g. higher unionisation in Europe).
3. **Industry and sector bias**, where ratings providers oversimplify industry weighting and company alignment.

Bias can potentially also be seen in how certain industries (e.g. technology) are assessed in comparison to other industries, or through the lens of other factor labels, such as 'growth' or 'value'.

9

CONCLUSION

There are many techniques for ESG integration across asset classes, although most investors are aligned in seeking to maximise risk-adjusted returns in using these ESG tools. While certain tools are asset class specific, the overall framework of identifying material ESG factors and then embedding them in valuation and assessment remains similar.

As of 2021, the field remains dynamic, as it has been over recent years, and expert techniques and tools for analysis continue to evolve.

APPENDIX 7.1

This appendix provides further information on Sustainalytics and its ESG products as well as MSCI Research.

This content will not be assessed. It is provided to give more insight into two major ratings providers' methodology, but does not suggest that these are the only ways in which ESG ratings can be performed.

Sustainalytics and its ESG products

Sustainalytics is an ESG and corporate governance research and ratings provider. As of 2018, it was considered a top 3 provider of ESG ratings and in 2020 it was acquired by Morningstar. It has strategic partnerships with:

- ▶ Morningstar (see [Section 4](#));
- ▶ Glass Lewis (proxy adviser);
- ▶ STOXX (index provider); and
- ▶ since 2018, FTSE Russell (index provider).

It has several products ranging from compliance and screening, index research, portfolio analysis, carbon and country risk research to ESG integration research.

The Sustainalytics' ESG Risk Rating

The [Sustainalytics' ESG Risk Rating](#) measures the degree to which a company's economic value is at risk driven by ESG factors or, more technically speaking, the magnitude of a company's unmanaged ESG risks.

The rating system gives points for specific risk factors. Each point of risk is equivalent, no matter which company or issue it applies to. Points will add up across issues to create overall scores, which are then rated.

The rating sorts companies into five risk categories:

1. negligible;
2. low;
3. medium;
4. high; and
5. severe.

These risk categories are absolute, meaning that a 'high' risk assessment reflects a comparable degree of unmanaged ESG risk across the research universe, whether it refers to an agriculture company, a utility or any other type of company.

According to Sustainalytics, an issue is considered 'material' within the ESG Risk Rating if its presence or absence in financial reporting is likely to influence the decisions made by a reasonable investor.

To be considered 'relevant' in the risk rating, the issue must have a potentially substantial impact on the economic value of a company and, hence, the financial risk and return profile of an investor investing in the company.

It is important to distinguish the ESG Risk Rating's use of materiality as a concept from narrower legal or accounting-focused definitions. Not every issue Sustainalytics considers as 'material' in the rating is legally required to be disclosed in company reporting. Some issues are 'material' from an ESG perspective, even if the financial consequences are not fully measurable today.

The ESG Risk Rating's emphasis on materiality incorporates an additional dimension – the **exposure dimension**. It reflects the extent to which a company is exposed to material ESG risks identified at industry-level and affects the overall rating score for a company as well as its rating score for each material ESG issue. ESG issue risk exposure is estimated at sub-industry level and further adjusted at individual company level.

The ESG Risk Rating's second dimension is **management**. ESG management can be considered as a set of company commitments and actions that demonstrate how a company approaches and handles an ESG issue through policies, programmes, quantitative performance and involvement in controversies, as well as its management of corporate governance. Sustainalytics considers management in the ESG Risk Rating, as company commitments and actions provide signals about whether companies are managing ESG risks.

Unmanaged risk: how Sustainalytics arrives at the scores

The ESG Risk Rating scoring system for a company is best thought of as occurring in three stages on the issue level:

1. the starting point is exposure;
2. the next stage is management; and
3. the final stage is calculating unmanaged risk, using the concept of risk decomposition.

The final ESG risk rating score is a measure of unmanaged risk. This is defined as material ESG risk that has not been managed by a company. As noted in [Section 3](#), it includes two types of risk:

- ▶ unmanageable risk, which cannot be addressed by company initiatives; and
- ▶ the management gap, which represents risks that could be managed by a company through suitable initiatives but which may not yet be managed.

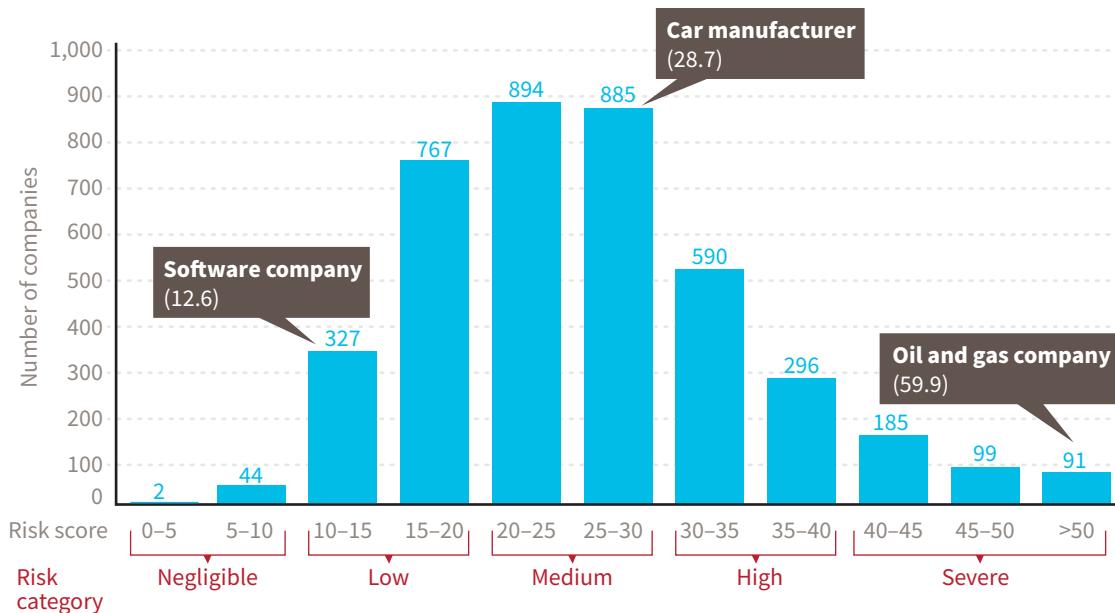
The share of risk that is manageable versus the share of risk that is unmanageable on a material ESG issue is predefined at a sub-industry level by a manageable risk factor. Every material ESG issue has an issue **manageable risk factor (MRF)**, ranging from 30% (indicating that a high level of the issue risk is unmanageable) to 100% (indicating that the issue risk is considered fully manageable).

Calculating the final unmanaged risk score

The assessment of unmanaged risk (the final ESG Risk Rating score) requires three steps:

1. Assess the share of the overall exposure of companies and compare to a material ESG issue in a given sub-industry that can be managed by a company (**manageable risk assessment**).
2. At the company level, the degree to which a company has managed the manageable risk portion of its overall exposure, with regard to an issue being calculated based on the management assessment (**overall management score assessment**).
3. Finally, the unmanaged risk score is calculated by subtracting managed risks from a company's overall exposure score in relation to a material ESG issue (**final unmanaged risk score calculation**).

[Figure 7.9](#) shows how the companies Sustainalytics have used for testing and validation are allocated across the five ESG risk categories that were defined for the ESG risk rating.

Figure 7.9: ALLOCATION OF COMPANIES ACROSS ESG RISK CATEGORIES (JANUARY 2020)

Source: Sustainalytics (2020).³⁷

- Further details on how research looks at materiality, governance and idiosyncratic issues can be found in *Further reading*.

MSCI ESG research

According to the [MSCI ESG Rating](#), ESG risks and opportunities are posed by:

- ▶ large scale trends (e.g. climate change, resource scarcity or demographic shifts); and
- ▶ the nature of the company's operations.

The MSCI considers a risk or an opportunity to be material to industry as follows:

- ▶ A **risk** is material to an industry when it is likely that companies in a given industry will incur substantial costs in connection with it (for example, a regulatory ban on a key chemical input).
- ▶ An **opportunity** is material to an industry when it is likely that companies in a given industry could capitalise on it for profit (for example, opportunities in clean technology for the LED lighting industry).

Note that this definition of 'materiality' is different to that of Sustainalytics, but still a judgment (and may differ from other investors' judgments).

MSCI assess material risks and opportunities for each industry through a quantitative model that compares ranges and average values in each industry for externalised impacts (such as carbon intensity, water intensity and injury rates). Exceptions are allowed for companies with diversified business models or that are facing controversies, or based on industry rules. Once identified, these 'key issues' are assigned to each industry and company.

[Table 7.5](#) summarises the MSCI ESG hierarchy (note the overlaps, but also differences, to the SASB mapping seen in [Figure 7.4](#)).

Table 7.5: MSCI ESG HIERARCHY

3 PILLARS	10 THEMES	37 ESG KEY ISSUES
Environment	Climate change	Emissions Financing environmental impact Product carbon footprint Climate change vulnerability
	Natural resources	Water stress Biodiversity and land use Raw material sourcing
	Pollution and waste	Toxic emissions and waste Packaging material and waste Electronic waste
	Opportunities	Opportunities in clean tech Opportunities in green building Opportunities in renewable energy
Social	Human capital	Labour management Health and safety Human capital development Supply chain labour standards
	Product liability	Product safety and quality Chemical safety Financial product safety Privacy and data security Responsible investment Health and demographic risk
	Stakeholder opposition	Controversial sourcing
	Social opportunities	Access to communications Access to finance Access to healthcare Opportunities in nutrition and health
Governance	Corporate governance	Board Pay Ownership Accounting
	Corporate behaviour	Business ethics Anti-competitive practices Tax transparency Corruption and instability Financial system instability

Source: MSCI.³⁸

Final MSCI ESG Ratings are derived by the weighted averages of the key issue scores. These scores are aggregated and companies' scores are normalised by their industries. After any overrides are factored in, each company's final industry-adjusted score corresponds to a rating between the best (AAA) and the worst (CCC). These assessments of company performance are not absolute, but are explicitly intended to be relative to the standards and performance of a company's industry peers.

MSCI ESG risk score

MSCI argues that to understand whether a company is adequately managing a key ESG risk, it is essential to understand both:

- ▶ what management strategies it has employed (i.e. **risk management**); and
- ▶ how exposed it is to the risk (i.e. **risk exposure**).

The MSCI ESG Ratings model attempts to measure both of these. For MSCI to score a company highly on a key issue, the management needs to be judged commensurate with the level of exposure:

- ▶ a company with high exposure must also have very strong management; but
- ▶ a company with limited exposure can have a more modest approach.

The risk exposure and management scores are combined so that a higher level of exposure requires a higher level of demonstrated management capability in order to achieve the same overall key issue score. Key issue scores are also on a 0 to 10 scale, where 0 is very poor and 10 is very good.

MSCI ESG opportunity score

The assessment of MSCI ESG opportunities works similarly to risks, but the model for combining exposure and management differs:

- ▶ **exposure** indicates the relevance of the opportunity to a given company based on its current business and geographic segments; and
- ▶ **management** indicates the company's capacity to take advantage of the opportunity.

Where exposure is limited, the key issue score is constrained toward the middle of the 0 to 10 range, while high exposure allows for both higher and lower scores.

MSCI controversy assessment

MSCI ESG Ratings also reviews controversies, which may indicate structural problems with a company's risk management capabilities.

As noted in **Section 3**, a controversy case is defined as an instance, or ongoing situation, in which company operations or products allegedly have a negative environmental, social or governance impact.

Example

Controversies cases

The ESG rating model is applied to two controversies cases:

- A. A case that is deemed by an analyst to indicate structural problems.
- B. A case that is deemed to be an indicator of recent performance, but doesn't offer clear signals of future material risk.

The rating system finds that Case A poses future material risks for the company and so triggers a larger deduction from the key issue score than Case B.

MSCI data sources

These data sources that MSCI ESG Ratings use are similar to what Sustainalytics and other in-house teams might use. They may include:

- ▶ macro data at segment or geographic level from academic, government and NGO datasets; and
- ▶ company disclosure (e.g. annual report filings, sustainability report, proxy report or annual general meeting (AGM) results).

MSCI final letter rating summary

To arrive at a final letter rating, the weighted average key issue score is normalised by industry. The range of scores for each industry is established annually by taking a rolling three-year average of the top and bottom scores among the MSCI ACWI Index constituents; the values are set at the 97.5th and 2.5th percentile.

Using these ranges, the weighted average key issue score is converted to an industry-adjusted score from 0 to 10, where 0 is worst and 10 is best. The industry-adjusted score corresponds to a rating between best (AAA) and worst (CCC).

MSCI ESG research

MSCI is historically most well-known for its market index products, but it also provides:

- ▶ ESG and corporate governance research and ratings; and
- ▶ index and fund research.

As of 2018, it was considered a top 3 provider of ESG ratings. Like Sustainalytics, it has several products ranging from compliance and screening, index research, portfolio analysis and carbon risk research to ESG integration research.

MSCI has the intellectual property from legacy companies KLD, Innovest, IRRC and GMI (Governance Metrics International) Ratings.

KEY FACTS

1. Investors integrate ESG techniques to improve investment returns, lower investment risk, meet client needs and regulatory requirements.
2. There are a multitude of approaches to integrating ESG analysis into a firm's investment process. Many approaches can be combined and some are more suitable to specific asset classes and risks.
3. Quantitative and qualitative approaches can be used at all stages of the investment process from idea and research generation to asset valuation and portfolio construction.
4. Materiality assessment is an important ESG technique as investors typically distinguish between important material ESG factors and less important non-material ESG factors. Non-material factors are considered to not impact investment considerations.
5. Primary ESG data comes from direct sources. Secondary ESG information has been transformed or assessed. Investors can use both types of ESG sources in their analysis. ESG data, like all data, needs to be interpreted in the correct contexts.
6. ESG ratings agencies use a mix of ESG information and proprietary assessments to give ESG ratings to stocks and credits. Current ESG ratings agencies have variable correlation between their ESG ratings due to methodological differences.
7. Credit ratings agencies (CRAs) are increasingly using ESG factors, particularly **G**, in their credit assessments. This has developed and is expected to continue to develop quickly.
8. Investment consultants and asset owners will utilise ESG assessment to judge investment managers and use it as part of their decision criteria.
9. Index providers use ESG factors in establishing ESG indices. These can be thematic or general.
10. Investors use a range of ESG ratings and techniques both internally generated and sourced from third parties to enhance their investment valuation and decision processes.
11. ESG tools and integration techniques continue to develop at a fast pace due to investor and end customer demand.

CHAPTER 7

SELF-ASSESSMENT

These self-assessment questions are provided only to enable you to test your understanding of the chapter content. They are not indicative of the types and standard of questions you may see in the examination.

Questions

- 1. The aims and objectives for integrating ESG into an investment process may include:**
 - (a) Meeting requirements under Principles for Responsible Investment (PRI) regulations.
 - (b) Increasing reputational risk at a firm and investment level.
 - (c) Meeting internal audit demands.
 - (d) Improving the quality of engagement and stewardship activities, and increasing investment returns.
- 2. Qualitative ESG analysis is likely to be used in investment processes that are based on:**
 - (a) Company-specific research.
 - (b) Fundamental analysis.
 - (c) Stock-picking.
 - (d) All of the above.
- 3. Qualitative analysts and portfolio managers seek to integrate their qualitative investment opinion by incorporating:**
 - (a) Negative screening.
 - (b) Quantitative adjustments to financial models and valuations.
 - (c) Qualitative measures only.
 - (d) None of the above.
- 4. Elements of ESG integration include:**
 - (a) ESG factor tilts.
 - (b) Red flag indicators.
 - (c) Company questionnaires and management interviews.
 - (d) Watch lists.

5. Which of these statements is NOT true?

- (a) The ESG integration framework is not meant to illustrate the perfect ESG-integrated investment process.
- (b) The ESG integration techniques of one firm are not necessarily the right techniques for all firms.
- (c) There is a consensus amongst firms on which techniques to use to identify and assess ESG factors
- (d) Every firm is unique and will use a selection of the techniques referenced in the *ESG Integration Framework*.

6. In relation to materiality assessment, which of the following is correct?

- (a) The materiality assessment is typically contained in the valuation stage.
- (b) Materiality is measured in terms of likelihood and magnitude of impact on a company's financial performance.
- (c) There is evidence that non-material factors impact financials, valuations and company business models.
- (d) Ethical or impact investors judge material factors affecting social, environmental and maximum financial returns.

7. Which of the following best represents the chronological order for ESG scorecard development?

- (a) **Step 1:** Determine a scoring system based on what good or best practice looks like for each indicator or issue.
Step 2: Assess a company and give it a score.
Step 3: Identify sector or company specific ESG items.
Step 4: Benchmark the company's performance against industry averages or peer group.
Step 5: Calculate aggregated scores at issue level, dimension level, or total score level.
Step 6: Breakdown issues into a number of indicators.
- (b) **Step 1:** Determine a scoring system based on what good or best practice looks like for each indicator or issue.
Step 2: Breakdown issues into a number of indicators.
Step 3: Assess a company and give it a score.
Step 4: Identify sector or company specific ESG items.
Step 5: Calculate aggregated scores at issue level, dimension level, or total score level.
Step 6: Benchmark the company's performance against industry averages or peer group.

- (c) Step 1: Identify sector or company specific ESG items.
Step 2: Breakdown issues into a number of indicators.
Step 3: Determine a scoring system based on what good or best practice looks like for each indicator or issue.
Step 4: Assess a company and give it a score.
Step 5: Calculate aggregated scores at issue level, dimension level, or total score level.
Step 6: Benchmark the company's performance against industry averages or peer group.
- (d) Step 1: Identify sector or company specific ESG items.
Step 2: Assess a company and give it a score.
Step 3: Breakdown issues into a number of indicators.
Step 4: Determine a scoring system based on what good or best practice looks like for each indicator or issue.
Step 5: Calculate aggregated scores at issue level, dimension level or total score level.
Step 6: Benchmark the company's performance against industry averages or peer group.
8. **Disclosure and data-related challenges for ESG integration include:**
- (a) Data consistency.
(b) Data scarcity.
(c) Data incompleteness and lack of audited data.
(d) All of the above.
9. **This question relates to the case study focusing on the beverages company. Which of the following are examples of material environmental factors that should be considered?**
- (a) Talent retention; recruitment strategy.
(b) Water efficiency; greenhouse gas emissions (GHG).
(c) Supplier code-of-conduct protocols; product mix.
(d) Human rights strategy; anti-bribery policy.
10. **Which of the following is NOT utilised by a fixed income practitioner when evaluating ESG aspects?**
- (a) Bankruptcy risk.
(b) Proxy voting.
(c) Negative credit events.
(d) Time horizons.

- 11. Which of the following best represents factors least considered by credit ratings agencies (CRAs)?**
 - (a) Bankruptcy risk, standard credit ratio analysis, litigation risk.
 - (b) Bankruptcy risk, litigation risk, human capital risk.
 - (c) Environmental risk, religious or ethical risk.
 - (d) Environmental risk, standard credit ratio analysis, governance risk.
- 12. Which of the following factors is generally considered the most important when evaluating ESG considerations around sovereign debt?**
 - (a) Environmental factors.
 - (b) Social factors.
 - (c) Governance factors.
 - (d) Human capital factors.
- 13. Which of the following statements best describes a green bond?**
 - (a) Bonds that finance green projects.
 - (b) Bonds that meet certain ratings criteria.
 - (c) Bonds that get the green light based on governance guidelines.
 - (d) Bonds that are evergreen and roll on for a specified duration.
- 14. Which of these is NOT an ESG-integrated valuation technique?**
 - (a) Adjusting sales growth assumptions due to weak employee engagement scores.
 - (b) Adjusting cost of capital due to poor governance ratings.
 - (c) Adjusting cash flows due to cash tax adjustments.
 - (d) Changing fair value price/earnings (PE) ratio due to strong sustainability scores.
- 15. An analyst assesses a company as below average on ESG metrics. All other matters being equal, she is most likely to:**
 - (a) Give a PE premium to the stock.
 - (b) Increase the company's cost of capital.
 - (c) Increase the terminal growth rate assumption in a DCF model.
 - (d) Reduce the risk of default in her forecast models.

CHAPTER 7

SELF-ASSESSMENT ANSWERS

1. **d.**
2. **d.**
3. **b.**
4. **a.**
5. **c.**
6. **b.**
7. **c.**
8. **d.**
9. **b.**
10. **b.**
11. **c.**
12. **c.**
13. **a.**
14. **c.**
15. **b.**

FURTHER READING

Reports and standards concerning ESG practice

- CFA Institute (2017). *Global Perceptions of Environmental, Social and Governance Issues in Investing*. Available at: www.cfainstitute.org/en/research/survey-reports/esg-survey-2017
- CFA Institute and the Principles for Responsible Investment (PRI) (2018). *ESG Integration in the Americas: Markets, Practices and Data*. Available at: www.cfainstitute.org/en/research/survey-reports/esg-integration-americas-survey-report
- CFA Institute and PRI (2018). *Guidance and Case Studies for ESG Integration: Equities and Fixed Income*. Available at: www.cfainstitute.org/-/media/documents/survey/guidance-case-studies-esg-integration.ashx
- Financial Reporting Council (2020). *UK Stewardship Code*. Available at: www.frc.org.uk/investors/uk-stewardship-code
- Financial Services Agency (2017). *Principles for Responsible Institutional Investors «Japan's Stewardship Code»*. Available at: www.fsa.go.jp/en/laws_regulations/pc_stewardship.html
- Generation Investment Management (2019). *Generation Philosophy*. Available at: www.generationim.com/generation-philosophy/
- PRI (2016). *Credit Risk and Ratings Initiative*. Available at: www.unpri.org/credit-ratings
- RBC Global Asset Management (2019). *RBC Global Equity*. Available at: <http://global.rbcgam.com/global-equities/default.fs>
- Tuan, M. T. (2008). *Measuring and/or Estimating Social Value Creation: Insights into Eight Integrated Cost Approaches*. Available at: <https://docs.gatesfoundation.org/Documents/wwl-report-measuring-estimating-social-value-creation.pdf>
- United Nations Global Compact, United Nations Environment Programme Finance Initiative (UNEP FI) and PRI et al. (2019). *Fiduciary Duty in the 21st Century*. Available at: www.unepfi.org/fileadmin/documents/fiduciary_duty_21st_century.pdf

BOOKS AND ARTICLES

Chatterji, A., Levine, D.I. and Toffel, M.W. (2009). "How well do social ratings actually measure corporate social responsibility?" *Journal of Economics & Management Strategy*, 18(1), pp. 125–169.

Available at: <https://ssrn.com/abstract=1394704>

Edmans, A. (2011). "Does the stock market fully value intangibles? Employee satisfaction and equity prices". *Journal of Financial Economics*, 101(3), pp. 621–640. Available at: <https://ssrn.com/abstract=985735>

Flammer, C. (2013). "Does corporate social responsibility lead to superior financial performance? A regression discontinuity approach". *Journal of Economic Literature*, 27 Oct. 2013. Available at: <https://ssrn.com/abstract=2146282>

Haskel, J. and Westlake, S. (2017). *Capitalism Without Capital: The Rise of the Intangible Economy*. Princeton University Press.

Khan, M., Serafeim, G. and Yoon, A. (2016) "Corporate sustainability: first evidence on materiality". *The Accounting Review*, 91(6), pp. 1697–1724. Available at: <https://ssrn.com/abstract=2575912>

Krosinsky, C. (2018). *The Failure of Fund Sustainability Ratings*. Available at: https://medium.com/@cary_krosinsky/the-failure-of-fund-sustainability-ratings-bea95c0b370f

OECD (2017). *Responsible Business Conduct for Institutional Investors: Key Considerations for Due Diligence Under the OECD Guidelines for Multinational Enterprises*. Available at: <https://mneguidelines.oecd.org/RBC-for-Institutional-Investors.pdf>

PRI (2014). *A GP's guide to integrating ESG factors in private equity*. Available at: www.unpri.org/private-equity/a-gps-guide-to-integrating-esg-factors-in-private-equity/91.article

END NOTES

¹ RBC Global Asset Management (2020). *2020 Responsible Investment Survey Key Findings*. Available at: www.rbcgam.com/documents/en/other/esg-key-findings.pdf

² United Nations Global Compact, UNEP FI and PRI et al. (2019). *Fiduciary Duty in the 21st Century*. Available at: www.unepfi.org/fileadmin/documents/fiduciary_duty_21st_century.pdf

³ CFA Institute (2017). *Global Perceptions of Environmental, Social and Governance Issues in Investing*. Available at: www.cfainstitute.org/en/research/survey-reports/esg-survey-2017

⁴ Amel-Zadeh, A. and Serafeim, G. (2017). "Why and How Investors Use ESG Information: Evidence from a Global Survey". *Financial Analysts Journal*. Available at: <http://dx.doi.org/10.2139/ssrn.2925310>

⁵ Business Roundtable (2019). *Business Roundtable Redefines the Purpose of a Corporation to Promote 'An Economy That Serves All Americans'*. Available at: www.businessroundtable.org/business-roundtable-redefines-the-purpose-of-a-corporation-to-promote-an-economy-that-serves-all-americans_en

⁶ ProgrammableWeb (2020). *Growth in Financial Related (Financial, Banking, Payments, Monetization) APIs since 2005*. Available at: www.programmableweb.com/news/financial-apis-have-seen-two-growth-spikes/research/2017/08/09

⁷ CFA Institute and PRI (2018). *Guidance and case studies for ESG integration: equities and fixed income*. Available at: www.unpri.org/investor-tools/guidance-and-case-studies-for-esg-integration-equities-and-fixed-income/3622.article

⁸ Khan, M., Serafeim, G. and Yoon, A. (2016) "Corporate sustainability: first evidence on materiality". *The Accounting Review*, 91(6), pp. 1697–1724. Available at: <https://ssrn.com/abstract=2575912>

⁹ European Commission (2021). *EU taxonomy for sustainable activities*. Available at: https://ec.europa.eu/info/business-economy-euro/banking-and-finance/sustainable-finance/eu-taxonomy-sustainable-activities_en

¹⁰ International Integrated Reporting Council (2013). *International <IR> Framework*. Available at: <https://integratedreporting.org/resource/international-ir-framework/>

¹¹ HSBC & Equity Strategy (2016). *Global ESG Sector Playbook*.

¹² SASB (2018). *SASB materiality map*. Available at: <https://materiality.sasb.org/>

¹³ IFRS (2010). *IFRS Practice Statement 1: Management Commentary*. Available at: www.ifrs.org/issued-standards/list-of-standards/management-commentary-practice-statement/

¹⁴ Please refer to the following three articles:

- ▶ Crilly, D., Hansen, M. and Zollo, M. (2015). "The Grammar of Decoupling: A Cognitive-Linguistic Perspective on Firms' Sustainability Claims and Stakeholders' Interpretation". *Academy of Management Journal*, vol. 59, no.2, 22 Dec. 2015. Available at: <https://journals.aom.org/doi/10.5465/amj.2015.0171>
- ▶ Saad, A. and Strauss, D. (2020). "The New 'Reasonable Investor' and Changing Frontiers of Materiality: Increasing Investor Reliance on ESG Disclosures and Implications for Securities Litigation". *Berkeley Business Law Journal*, vol. 17.2, 29 May. 2020. Available at: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3590809

- ▶ Zhang, F., Qin, X. and Liu, L. (2020). "The interaction Effect between ESG and Green Innovation on Firm Value from the Perspective of Information Disclosure". *Sustainability* 2020, 2 Mar. 2020. Available at: www.mdpi.com/2071-1050/12/5/1866
- ¹⁵ Chambers, D. R., Black, K., and Lacey, N. J. (2018). "Alternative Investments: A Primer for Investment Professionals". CFA Institute Research Foundation, Research Foundation Books: 2018. Available at: www.cfainstitute.org/en/research/foundation/2018/alternative-investments-a-primer-for-investment-professionals
- ¹⁶ PRI (2019). *PRI Reporting Framework 2019: Direct – Infrastructure*. Available at: www.unpri.org/Uploads/l/h/o/09.inf2019_843342.pdf
- ¹⁷ British Private Equity & Venture Capital Association (2021). *Responsible Investment*. Available at: www.bvca.co.uk/Our-Industry/Responsible-Investment
- ¹⁸ Larcker, D. F. and Tayan, B. (2018). "Governance Gone Wild: Misbehavior at Uber Technologies". *Harvard Law School Forum on Corporate Governance*, 20 Jan. 2018. Available at: <https://corpgov.law.harvard.edu/2018/01/20/governance-gone-wild-misbehavior-at-uber-technologies/>
- ¹⁹ Langevoort, D. C. and Sale, H. A. (2021). "Corporate Adolescence: Why Did 'We' not Work?" 8 Jan. 2021. Available at: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3762718
- ²⁰ Baker, B. (2020). "Scope 3 Carbon Emissions: Seeing the Full Picture". *MSCI Blog*, 17 Sep. 2020. Available at: www.msci.com/www/blog-posts/scope-3-carbon-emissions-seeing/02092372761
- ²¹ IFRS (2021). *Management Commentary*. Available at: www.ifrs.org/projects/work-plan/management-commentary/
- ²² Vogel, D. (2005). *The Market for Virtue: The Potential and Limits of Corporate Social Responsibility*. Washington, DC: Brookings Institution Press.
- ²³ Publications Office of the EU (2021). *Study on sustainability-related ratings, data and research*. Available at: <https://op.europa.eu/en/publication-detail/-/publication/d7d85036-509c-11eb-b59f-01aa75ed71a1/language-en/format-PDF/source-183474104%E2%80%9D>
- ²⁴ Chatterji, A., Levine, D.I. and Toffel, M.W. (2009). "How well do social ratings actually measure corporate social responsibility?" *Journal of Economics & Management Strategy*, 18(1), pp. 125–169. Available at: <https://ssrn.com/abstract=1394704>
- ²⁵ Berg, F., Koelbel, J.F. and Rigobon, R. (2019). *Aggregate Confusion: The Divergence of ESG Ratings*. Available at: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3438533
- ²⁶ Gibson, R., Krueger, P., et al. (2019). "ESG Rating Disagreement and Stock Returns". Swiss Finance Institute Research Paper No. 19-67. Available at: <https://ssrn.com/abstract=3433728>
- ²⁷ The example was adapted from:
Mercer (2018). *Mercer's ESG Ratings*. Available at : www.mercer.com/our-thinking/mercier-esg-ratings.html
- ²⁸ World Economic Forum (2019). *WEF Global Risk Report 2019*. Available at: www.weforum.org/global-risks/reports
- ²⁹ World Economic Forum (2019). *The Global Risks Interconnections Map 2019*.
- ³⁰ PRI (2020). *Statement on ESG in credit risk and ratings*. Available at: www.unpri.org/credit-ratings/statement-on-esg-in-credit-risk-and-ratings-available-in-different-languages/77.article

³¹ PRI (2017). *Shifting Perceptions: ESG, Credit Risk and Ratings* (2017). Available at: www.unpri.org/credit-ratings

³² European Commission (2021). *EU Green Bonds Standards*. Available at: https://ec.europa.eu/info/business-economy-euro/banking-and-finance/sustainable-finance/eu-green-bond-standard_en

³³ MSCI ESG Research, Bloomberg Barclays Indices, Barclays Research. Sustainalytics corporate ESG data is based on ESG Rating methodology, which has now been replaced with the *ESG Risk Rating Methodology*.

³⁴ Sustainalytics ESG Research, Bloomberg Barclays Indices, Barclays Research. Sustainalytics corporate ESG data is based on ESG Rating methodology, which has now been replaced with the *ESG Risk Rating Methodology*.

³⁵ Barclays (2018). *The case for sustainable bond investing strengthens*. Sustainalytics data based on the firm's legacy ESG ratings. Available at: www.investmentbank.barclays.com/content/dam/barclaysmicrosites/ibpublic/documents/our-insights/ESG2/BarclaysIB-ImpactSeries4-ESG-in-credit-5MB.pdf

³⁶ Multiple sources (including Volkswagen AG) as detailed in:

Griffin, P.A. and Lont, D. H. (2016). *Game Changer? The Impact of the VW Emission Cheating Scandal on the Co-Integration of Large Automakers' Securities*. Available at: <http://ssrn.com/abstract=2838949>

³⁷ Sustainalytics (2019). *Our Solutions*. Available at: www.sustainalytics.com/our-solutions

³⁸ MSCI (2019). *MSCI ESG Ratings Methodology, Executive Summary, September 2019*. Available at: www.msci.com/documents/1296102/14524248/MSCI+ESG+Ratings+Methodology+-+Exec+Summary+2019.pdf

