

CHAPTER

7

ESG Analysis, Valuation, and Integration

LEARNING OUTCOMES

Mastery	<i>The candidate should be able to:</i>
<input type="checkbox"/>	7.1.1 explain the aims and objectives of integrating ESG into the investment process
<input type="checkbox"/>	7.1.2 describe different approaches of integrating ESG analysis into the investment process
<input type="checkbox"/>	7.1.3 describe qualitative approaches to ESG analysis across a range of asset classes
<input type="checkbox"/>	7.1.4 describe quantitative approaches to ESG analysis across a range of asset classes
<input type="checkbox"/>	7.1.5 identify tangible and intangible material ESG-related factors through both qualitative and quantitative approaches
<input type="checkbox"/>	7.1.6 describe how scorecards may be developed and constructed to assess ESG factors
<input type="checkbox"/>	7.1.7 assess ESG issues using risk mapping methodologies
<input type="checkbox"/>	7.1.8 explain how ESG complements traditional financial analysis
<input type="checkbox"/>	7.1.9 analyze how ESG factors may affect industry and company performance
<input type="checkbox"/>	7.1.10 analyze how ESG factors may affect security valuation across a range of asset classes
<input type="checkbox"/>	7.1.11 interpret a company's disclosure on selected ESG topics
<input type="checkbox"/>	7.1.12 apply the range of approaches to ESG analysis and integration across a range of asset classes
<input type="checkbox"/>	7.1.13 describe the challenges of undertaking ESG analysis across different geographic regions and cultures
<input type="checkbox"/>	7.1.14 describe the challenges of identifying and assessing material ESG issues
<input type="checkbox"/>	7.1.15 describe the challenges of integrating ESG analysis into a firm's investment process
<input type="checkbox"/>	7.1.16 explain the approaches taken across a range of ESG integration databases and software available, and the nature of the information provided

LEARNING OUTCOMES

Mastery	The candidate should be able to:
<input type="checkbox"/>	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
<input type="checkbox"/>	7.1.18 describe the limitations and constraints of information provided by ESG integration databases
<input type="checkbox"/>	7.1.19 describe primary and secondary sources of ESG data and information
<input type="checkbox"/>	7.1.20 describe other uses of ESG and sustainability systems data
<input type="checkbox"/>	7.1.21 explain how Credit Rating Agencies (CRAs) approach ESG Credit Scoring

1

WHY INVESTORS INTEGRATE ESG

- 7.1.1** explain the aims and objectives of integrating ESG into the investment process

Many approaches to ESG analysis are used, and a multitude of ESG integration tools and techniques are available. These methods include company analysis, asset valuation, portfolio decision making, and 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

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

- ▶ meeting requirements under fiduciary duty or regulations,
- ▶ meeting client and beneficiary demands,
- ▶ lowering investment risk,
- ▶ increasing investment returns,
- ▶ giving investment professionals more tools and techniques to use in analysis,
- ▶ improving the quality of engagement and stewardship activities, and
- ▶ lowering reputational risk at a firm level and investment level.

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

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

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 *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, might fall under certain country regulations, such as the **EU Shareholder Rights Directive**, the UK Department for Work and Pensions' regulations, or the UK **Stewardship Code**. In these cases, the regulations or clients could demand a certain level of ESG integration, even though the investor might not believe that ESG integration enhances return or lowers risk. The aim is to meet minimum regulatory obligations or client demands.

The debate has evolved over the past two decades. Historically, legal questions arose as to whether some aspects of exclusionary strategies (e.g., excluding tobacco companies) were consistent with fiduciary duties (modeled on what a prudent person might do). Today, some legal and regulatory standards suggest that failing 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 (PRI)**, examined these questions over the past decade. Their analysis (across jurisdictions) argued that the fiduciary duties of investors require them to do the following:

- ▶ Incorporate ESG issues into investment analysis and decision-making processes, consistent with their investment time horizons
- ▶ Encourage high standards of ESG performance in the companies or other entities in which they invest
- ▶ Understand and incorporate beneficiaries' and savers' sustainability-related preferences, regardless of whether these preferences are financially material²

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 fluctuated but regardless, the point 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.

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 wish to enhance returns via ESG by seeking higher alpha. Recent surveys suggest that more firms do so to lower risk rather than enhance returns, but some firms do so for both reasons.^{3,4}

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

² United Nations Global Compact, United Nations Environment Programme (UNEP) Finance Initiative, PRI, and UNEP Inquiry (2019), *Fiduciary Duty in the 21st Century*. www.unepfi.org/fileadmin/documents/fiduciary_duty_21st_century.pdf.

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

⁴ A. Amel-Zadeh and G. Serafeim, "Why and How Investors Use ESG Information: Evidence from a Global Survey," *Financial Analysts Journal* 74(3) (2017): 87–103. <http://dx.doi.org/10.2139/ssrn.2925310>.

Exhibit 1: Why and How Investors Use ESG information: Evidence from a Global Survey

Survey responses to the following 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
N ⁱ =419	82.1%		85.9%	80.3%		93.2%	75.0%	***	75.2%	84.4%	*	
Yes, because ...												
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%		
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%	**	

Survey responses to the following 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)
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		p-value of difference (yes vs. no)	<0.001 <0.001

N_i = the number of respondents
Source: Amel-Zadeh and Serafeim (2017).⁴

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 that ESG integration leads to better risk-adjusted returns. However, many ESG integration tools, such as scorecards, 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.

Reputational Risk at a Firm Level

Firms might 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 Business Roundtable's "Statement on the Purpose of a Corporation"

(August 2019) signed by 181 CEOs (including those of 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 toward sustainability and climates, as well as perceptions of 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

- | | |
|--------------------------|--|
| <input type="checkbox"/> | 7.1.2 describe different approaches of integrating ESG analysis into the investment process |
| <input type="checkbox"/> | 7.1.3 describe qualitative approaches to ESG analysis across a range of asset classes |
| <input type="checkbox"/> | 7.1.4 describe quantitative approaches to ESG analysis across a range of asset classes |

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

A firm can use a multitude of approaches to integrate ESG analysis into its investment process. This section provides a summary of these approaches.

What is important to note is that ESG analysis can be either **qualitative** or **quantitative** (sometimes contracted to “quant”). Similarly, the way the analysis 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). Some techniques could be considered a hybrid of both techniques, such as 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 tend 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.

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

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

Quantitative ESG Analysis

Quantitative ESG (QESG) analysis is likely to be used in investment processes that use quant models to identify attractive investment opportunities. In such cases, the ESG data are 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 might assess ESG factors at the research stage typically using a third-party database or a mix of third-party data and internal proprietary data. This assessment is typically done with large datasets of stocks or bonds, rather than individual company assessment, though 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 might 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 might 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 affect 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 (e.g., scraped from internet news articles to adjust company or sector weights after parsing the ESG data through rules-based formulas).

See further sections within this chapter for more information on data sources.

Passive and index approaches might tilt toward ESG factors chosen by investors. For instance, the Japanese Government Pension Investment Fund has created, with index providers, gender-tilted, rules-based indexes 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 might assess alignment with priority themes, which could have an ESG nature (e.g., climate, gender). This alignment can be done with a material opportunity mapping process 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 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 **Sustainability 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 could 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, such as speech and text, by software. In particular, investors are interested in how to program computers to process and analyze 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 categorize and organize the documents themselves.

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

Highlights between the Quantitative Approaches and Qualitative Approaches and Terminology Confusion

Combining this information can be confusing because of 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 investing can be known as “systematic investing.” It can include the following strategies:

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

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

Typically, computer and mathematical models are built and then backtested. Where these models use ESG data or information (e.g., through raw data or ratings agencies), this is considered a form of ESG integration. This produces many challenges because the length of time series for ESG data (usually 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 can 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, those ESG ratings data might 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 applying it to overall investment strategies and processes rather than specific ESG integration techniques.

Tools and Elements of ESG Analysis

Regardless of whether the ESG analysis is classified as qualitative or quantitative, investors use many types of tools. These tools and elements of ESG analysis can include the following:

- ▶ Red flag indicators – Securities with high ESG risk are flagged and investigated further or excluded. For instance, a company that has a board that lacks majority independence might be flagged for deep scrutiny on management incentives or simply be excluded from an investable universe.
- ▶ Company questionnaires and management interviews – For example, if the detail on management aspects or other material ESG information is insufficient, the investor might ask the company for specific data. Or the investor might 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 meet to discuss the most material ESG issues.
- ▶ Checks with outside experts – For instance, an investor might interview key industry thought leaders or other stakeholders of the company, including customers, suppliers, or regulators. These checks might be complemented via interviews, surveys, or third-party sourcing, such as the use of expert networks.
- ▶ Watch lists – These lists might 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 an investor has assessed ESG risks or opportunities, 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 research could 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 can be based on a variety of data sources, and proprietary ESG research or scores could be created. Furthermore, research could consist of the following:
 - 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 – For this research, sell-side, ESG specialists, or third-party databases can all be used, and a materiality framework is created.
- ▶ ESG agenda items at investment committee– or chief information officer– level meetings – One technique to ensure consistent integration is to ensure an ESG section as a standing item at committee meetings. This approach might guarantee scrutiny from senior level investors and signal importance to the investment firm.

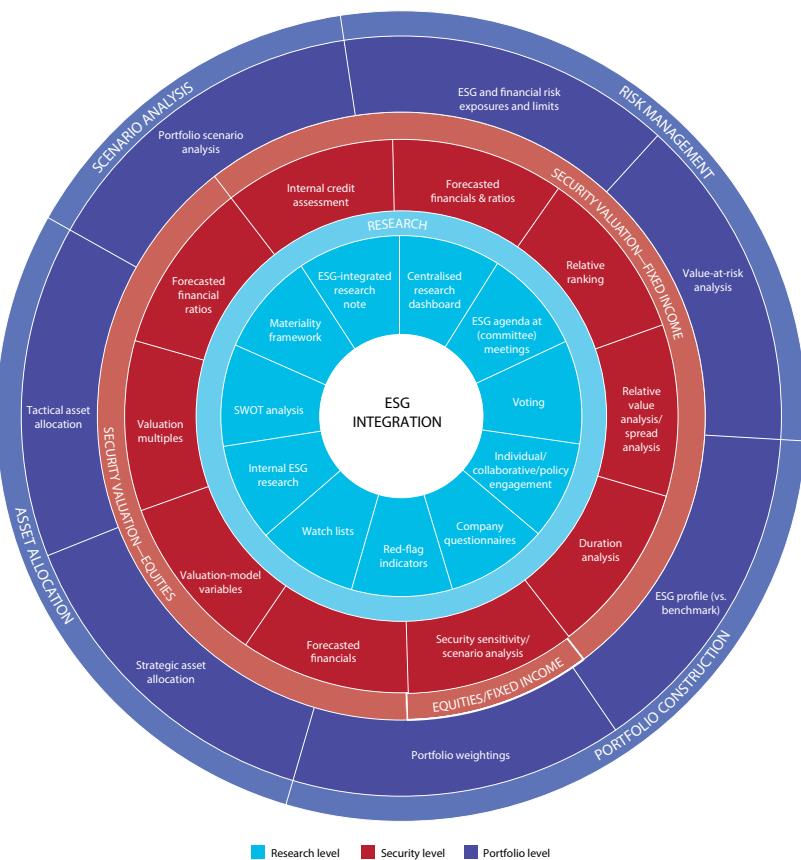
Elements of ESG Integration

The elements of ESG integration include the following:

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

This can be summed up by the ESG integration framework shown in Exhibit 2.

Exhibit 2: ESG Integration Framework



Source: CFA Institute 2018, in collaboration with PRI.⁷

The ESG integration framework, shown in Exhibit 2, is not meant to illustrate the perfect ESG-integrated investment process. Because 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

Many investment practitioners make two distinctions in fundamental investment analysis:

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

⁷ CFA Institute and PRI, *Guidance and Case Studies for ESG Integration: Equities and Fixed Income* (2018). www.unpri.org/investor-tools/guidance-and-case-studies-for-esg-integration-equities-and-fixed-income/3622.article.

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, organizational structure, incentives, corporate culture, or resources (natural, intellectual, or innovation). Many of these properties could be considered as under an ESG category. For instance, natural capital could be under E, corporate culture or supplier analysis under S, and management structure or incentives under G.

A business might 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 might 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 distinction is important because of the debate among investors who use security factors to invest. The debate here is whether these properties are ESG components that are robust QESG stock or bond factors.

See Chapter 8 for more detail on this debate.

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

TYPICAL STAGES OF INTEGRATED ESG ASSESSMENT (RESEARCH AND IDEA GENERATION STAGE)

3



- 7.1.5** identify tangible and intangible material ESG-related factors through both qualitative and quantitative approaches

Firms and investment teams might not have ESG factors embedded in their philosophy but still use ESG techniques within investment processes. These techniques can run alongside a financial analysis or have integrated aspects to the analysis. The stages typically are research, valuation, and portfolio construction, which leads to investment decisions.

Each of these stages is considered in further detail in the following subsections.

Research and Idea Generation Stage

Gathering Information

Practitioners gather financial and ESG information from multiple sources, typically 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 might include company questionnaires and management interviews, whereas quantitative data might include environmental emissions data.

Materiality Assessments

The research stage typically includes 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 in terms of both the likelihood and magnitude of impact.

The materiality assessment is considered important because evidence shows that nonmaterial factors do not affect financials, valuations, or company **business models**.⁸ It is distinguished from some exclusionary socially responsible investing strategies, which might also consider nonmaterial factors (e.g., exclusion of pork-based product companies for certain religious stakeholders) that 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 likely to have a financial impact in the future, either positive or negative).

As of 2021, debates are ongoing about the taxonomy and definitions to be used surrounding ESG and sustainability. For instance, the EU is proposing a taxonomy on sustainability investments.⁹ Also, some investors label their strategies as either "ethical" or "impact." Such ethical strategies might 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.

Exhibit 3: 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).

⁸ M. Khan, G. Serafeim, and A. Yoon, "Corporate Sustainability: First Evidence on Materiality," *The Accounting Review* 91(6) (2016): 1697–724. <https://ssrn.com/abstract=2575912>.

⁹ European Commission, *EU Taxonomy for Sustainable Activities* (2021). https://ec.europa.eu/info/business-economy-euro/banking-and-finance/sustainable-finance/eu-taxonomy-sustainable-activities_en.

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 organization for use in the production of goods or the provision of services and that is 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 organization for use in the production of goods or the provision of services, including buildings, equipment, and infrastructure (e.g., roads, ports, bridges, and waste and water treatment plants).
 - Manufactured capital is often created by other organizations but includes assets manufactured by the reporting organization for sale purposes or when they are retained for their own use.
- ▶ Intellectual capital – organizational, knowledge-based intangibles, including intellectual property (e.g., patents, copyrights, software, rights, and licenses) and “organizational capital” (e.g., tacit knowledge, systems, procedures, and protocols).
- ▶ Human capital – people’s competencies, capabilities, and experiences and their motivations to innovate, including the following:
 - their alignment with and support for an organization’s governance framework, risk management approach, and ethical values
 - the ability to understand, develop, and implement an organization’s strategy
 - their 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 the following:
 - shared norms and common values and behaviors
 - intangibles associated with the brand and reputation that an organization has developed
 - an organization’s social license 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 organization (see Chapter 3 in particular), including air, water, land, minerals, and forests, as well as biodiversity and ecosystem health.

Clearly, not all forms of capital (intangible or tangible) would be material or relevant to all companies; however, determining this might require a materiality judgment (see the later section on materiality assessments and risk mapping).

Many of the nonfinancial 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 can be assessed with some examples across company constituents, such as regulators, customers, employees, and suppliers.

A positive relationship with regulators could lead to less friction and litigation. Examples include

- ▶ social media and advertising companies,
- ▶ pharmaceutical companies,
- ▶ airlines,
- ▶ financial services, and
- ▶ any company that has a significant regulator, which could be found in many industries.

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

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

Pharmaceutical companies with a positive reputation and products that meet previously 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% to 60% for a company with a poor reputation, or it could be raised to 80% for a company with a positive reputation. This adjustment would affect risk-adjusted **discounted cash flow (DCF)** calculations: Faster approval positively affects 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 therefore cash flows. Differing growth rates might be affected by an investor's 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 affect forward estimates by investors. For instance, a hotel group with high employee satisfaction might find recruiting new talent easier and might be assessed to provide a better customer experience, which could lead to higher repeat revenue modeled by investors, or by investors prepared to assign higher valuation ratios (e.g., prepared to buy stocks with higher P/E ratios or bonds at lower credit spreads).

A poor supply chain or a weak relationship with suppliers might lead to a lower forecast by investors or lower valuation ratios, for instance, in food supply chains for supermarkets when a poor supply chain has led to instances of horse meat in lasagna food products. 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 labor practices might be negatively affected 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 begin this stage using a valuation screen, or fundamental screen, which might incorporate ESG factors—perhaps a mix of positive (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 approach is commonly referred to as “thematic” investing.

At this stage, checklists—internal or externally sourced—might “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 that affect society, such as a dam failing). Red flag techniques can also be used in later stages.

These risks might be ESG risks judged on an absolute hurdle basis or judged against what can be “priced into the asset.”

A materially negative assessment of a particular ESG factor or collection of factors could 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 might disqualify a possible investment and, the assessment triggers a “sell” or “do not invest” signal.

This assessment could be either **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 might indicate risks too great for an investor on a qualitative basis).

TYPICAL STAGES OF INTEGRATED ESG ASSESSMENT (SCORECARDS CAN BE USED TO ASSESS ESG RISK AND OPPORTUNITY, AND MATERIALITY ASSESSMENTS AND RISK MAPPING)

4

- 7.1.6** describe how scorecards may be developed and constructed to assess ESG factors
- 7.1.7** assess ESG issues using risk mapping methodologies

As an example, a credit analyst identifies a company that has no third-party ESG rating available but that 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 might, for example, be identified as a key ESG social risk (perhaps via a risk-mapping process, which is covered in the next subsection) for pharmaceutical companies X, Y, and Z:

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

Scores of 0 could make a company unattractive, and scores of 5 could 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 rating agencies can provide scores, and a form of scoring is typically used in commercially available ESG rating 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 as public companies. Challenges to creating private company scorecards is that a rating agency score is less likely to be available for a private company, and less information about it is available 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 more on ESG ratings agencies later in this chapter.

In summary, developing a scorecard involves the following steps:

1. Identify sector- or company-specific ESG items.
2. Break down 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 (ESG 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

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 those in other sectors (e.g., water stress has little affect on media or financial companies).

One should note that not all risks can be managed. Material ESG risk that has not been managed by a company takes two types: (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 might not yet be managed.

As explained, some risks are manageable, such as 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 airplanes in flight. An airline can manage some of the issues (e.g., by modernizing aircraft, installing winglets, and working on information and communication technology systems to minimize the time that airplanes spend idling on the runway), but it cannot easily manage all of an airplane's flight emissions. As a result, the 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, which relates to the manageable part of a company's material ESG risks and reflects the failure of the company in managing these risks sufficiently, as reflected in the company's management score.

EXAMPLE 1

Human Capital

Human capital is difficult to manage. A company can employ hundreds of thousands of people, and imagining a management program that could eliminate all risk of sexual harassment, low morale, or high turnover is very hard. But companies are expected to have 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 labor 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, a review of controversy cases can be helpful.

A controversy case is defined as an instance, or ongoing situation, in which a company's operations or products allegedly have a negative ESG 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 analyzing 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 analyzing the same company. This is because forecasting how much one ESG or risk factor will affect a financial metric such as future cash flow is typically a matter of judgement.

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 Exhibit 4, Exhibit 5, and Exhibit 6, which highlight the differing views investors might take.

Exhibit 4: Example Materiality Map of High-Level Sectors Across ESG Factors

			Business ethics and culture				Business ethics and culture		
4	Ownership and control	Ownership and control	Executive remuneration	Ownership and control			Business ethics and culture	Health and safety	Product responsibility
3	Community development	Product responsibility	Board structure	Business ethics and culture	Business ethics and culture	Ownership and control	Product responsibility	Regulatory threshold and compliance	Assessment and disclosure
2	Employment quality	Resource management and protection	Customer privacy and protection	Product responsibility	Product responsibility	Business ethics and culture	Resource management	Resource management	Climate change impact
1	Climate change impact	Regulatory threshold and compliance	Community development	Community development	Resource management	Regulatory threshold and compliance	Regulatory threshold and compliance	Climate change impact	Product responsibility
	Airlines	Autos	Banks (DM)	Banks (EM)	Beverages	Capital goods	Chemicals	Construction materials	Food and home and personal care
									Food retail

								Executive remuneration	
		Executive remuneration	Business ethics and culture	Ownership and control			Ownership and control	Business ethics and culture	Ownership and control
4	Ownership and control	Health and safety	Business ethics and culture	Business ethics and culture			Product responsibility	Employment quality	Customer privacy and protection control
3	Regulatory threshold and compliance	Customer privacy and protection	Assessment and disclosure	Health and safety	Human rights	Regulatory threshold and compliance	Health and safety	Health and safety	Customer privacy and protection
2	Climate change impact	Human rights	Resource management	Resource management	Community development	Assessment and disclosure	Pollution of air, water and soil	Product responsibility	Resource management
1	Assessment and disclosure	Resource management	Regulatory threshold and compliance	Climate change impact	Product responsibility	Climate change impact	Resource management	Pollution of air, water and soil	Regulatory threshold and compliance
	Leisure	Luxury	Mining	Oil and gas	Pharma	Real estate	Retailing	Technology	Telecoms
									Utilities

KEY
Environmental
Social
Governance

Source: HSBC (2016).¹⁰

Exhibit 4 highlights the numerous and shifting nature of many ESG factors.

One publicly available sector materiality assessment is provided by the SASB (see Exhibit 5). This shows that different industries can have different exposures (compare with Exhibit 6 on health care).

One can deduce that individual companies in the same market-defined sector might be judged to have different material ESG factors affecting their business. For instance, within insurance, a US health care insurer will have different factors affecting it than a car insurance firm would.

Investors can find more direct comparisons useful in analysis. In the health care industry example (Exhibit 6), 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 programs 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 because it engages only 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 because the company is not exposed.

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

¹⁰ HSBC and Equity Strategy, *Global ESG Sector Playbook* (2016).

Exhibit 5: Example

Renewable Resources and Alternative Energy		Renewable Resources		Non-renewable Resources		Transportation		Services		Resource Transformation		Consumption		Infrastructure	
Issues	Health Care	Financials	Technology and Communications	Employee health, safety and well-being	Diversity and inclusion	Recruitment, development, and retention	Business model and innovation	Lifecycle impacts of products and services	Environmental, social impacts on assets and operations	Product packaging	Product quality and safety	Leadership and governance	Systemic risk management	Accident and safety management	
Labor relations			x	x	x	x		x	x	x	x	x	x	x	
Fair labor practices			x					x	x			x		x	
Employee health, safety and well-being	x		x	x	x	x		x	x	x	x	x	x	x	
Diversity and inclusion	x		x			x		x	x			x		x	
Compensation and benefits			x			x		x	x	x	x	x	x	x	
Recruitment, development, and retention	x							x	x	x	x	x	x	x	
Business model and innovation															
Lifecycle impacts of products and services	x	x	x	x	x	x		x	x	x	x	x	x	x	
Environmental, social impacts on assets and operations	x	x	x	x	x	x		x	x	x	x	x	x	x	
Product packaging	x							x	x	x	x	x	x	x	
Product quality and safety	x							x	x	x	x	x	x	x	
Leadership and governance		x	x									x	x	x	

Issues	Health Care	Financials	Technology and Communications	Non-renewable Resources	Transportation	Services	Resource Transformation	Consumption	Renewable Resources and Alternative Energy	Infrastructure
Business ethics and transparency payments	X	X		X	X	X	X	X		X
Competitive behavior		X	X	X	X	X				X
Regulatory risk				X		X	X	X		X
Materials sourcing		X		X	X	X	X	X		X
Supply chain management	X			X	X	X	X	X		X

Source: SASB, SASB *Materiality Map* (2018). <https://materiality.sasb.org/>.

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 affect the whole pharmaceutical sector but might have an impact on the agriculture sector.

Using the SASB as a Baseline Framework in a Materiality Assessment

One example of where you might want to use the 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 Exhibit 6, “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 because both the drug regulator and the pharmaceutical regulator (in the United States, the Drug Enforcement Agency and the Food and Drug Administration, respectively) would be involved. For a standard pharmaceutical, only the pharmaceutical regulator would be involved.

The analyst might further judge that an ESG opportunity exists 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 other aspects of the company’s analysis might correspond to where the SASB has judged most risk to be (e.g., energy, water, and waste under E; see Exhibit 6).

As of 2019–2020, a trend has developed in company reporting to include more material ESG factors. However, various stakeholders do not agree on materiality and how to report, so developing proprietary materiality assessments could continue to be an important technique for investors to potentially develop their own analytical framework alongside standardized frameworks, such as those of the SASB or the Global Reporting Initiative (GRI). As the SASB becomes more established as a leading materiality framework, it might be worth further investigation because calls are increasing from stakeholders for such standardization.

ESG Risk-Mapping Methodologies

ESG risk mapping can 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, 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 footprinting or testing portfolios against different climate scenarios.

Exhibit 6: Example Materiality Map of Health Care Subsectors from the SASB

Issues	Health Care				
	Biotechnology	Pharmaceuticals	Medical Equipment and Supplies	Health care Delivery	Health care Distribution
Environment					
GHG emissions					
Air quality	x	x	x	x	x
Energy management					x
Fuel management	x	x	x	x	x
Water and wastewater management	x	x	x	x	x
Waste and hazardous materials management	x	x	x	x	x
Biodiversity impacts					
Social capital					
Human rights and community relations	x	x	x	x	x
Access and affordability	x	x	x	x	x
Customer welfare	x	x	x	x	x
Data security and customer privacy				x	x
Fair disclosure and labelling				x	x
Fair marketing and advertising	x	x	x	x	x
Human capital					
Labor relations				x	x
Fair labor practices		x	x	x	x
Employee health, safety, and well-being					
Diversity and inclusion					
Compensation and benefits					x
Recruitment, development, and retention	x	x	x	x	x
Business model and innovation					
Lifecycle impacts of products and services	x	x	x	x	x
Environmental, social impacts on assets and operations				x	x
Product packaging	x	x	x	x	x
Product quality and safety					
Leadership and governance					

Systemic risk management					
Accident and safety management					
Business ethics and transparency payments	x	x	x	x	x
Competitive behavior					
Regulatory capture and political influence		x			
Materials sourcing			x	x	x
Supply chain management	x	x	x	x	x

Source: SASB, SASB Materiality Map (2018). <https://materiality.sasb.org/>.

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 10-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.

VALUATION AND COMPANY INTEGRATED ASSESSMENT STAGE AND THE CHALLENGE OF COMPANY DISCLOSURE ON ESG TOPICS

5

- 7.1.8** explain how ESG complements traditional financial analysis
- 7.1.9** analyze how ESG factors may affect industry and company performance
- 7.1.10** analyze how ESG factors may affect security valuation across a range of asset classes
- 7.1.11** interpret a company's disclosure on selected ESG topics

After the research stage and any relevant risk and materiality mapping, 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 the following:

- ▶ 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
- ▶ 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

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 can contribute to a change in a cost of capital or terminal value growth assumption. For example, the coal sector might 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 affects a valuation model.

Also note that the sizing of the adjustment is typically at the discretion of the analyst, though the analyst might use certain guidelines.

Explicit Profit and Loss Sales, Balance Sheet and Margin Adjustments from ESG Assessment

Rather than changing model discount assumptions, explicit sales or margin assumptions can 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 the Further Reading section on academic work on employee satisfaction found in Professor Alex Edmans's work.

An adjustment can be a direct impact (e.g., an assessment of an environmental litigation fine being USD400m, or GBP288m) 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 might believe that ESG factors will lead a company to decrease or increase its future capital expenditure. A forecast ESG impairment event (e.g., a substandard factory) could 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 might decide that a company is worth a certain P/E ratio premium or discount versus its peers because of ESG factors.
- ▶ Alternatively, an investor might be prepared to invest in a company with, for example, a 50% discount on a P/E ratio versus an index benchmark simply because the company is judged to have a high ESG risk.
- ▶ Conversely, an investor might be willing to invest in a company at a 50% premium on a P/E ratio because of strong ESG characteristics.

The adjustment might also be absolute. For instance, the investor might assign a "fair value P/E" 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 the competition on surveys or having an 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 a board with poor skills, not independent, non-diversified thinking):

- ▶ increased risk of negative capital allocation decisions
- ▶ lower future cash flows or difficulty in IPO to capital markets
- ▶ lower valuation or increased bankruptcy risk

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

Active Ownership as an ESG Technique

What is worth noting here is 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 might 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, thereby influencing future cash flows and valuations). Such strategies could come under an active ownership or ESG activist approach. Information gained from an active engagement might also inform the ESG and traditional analysis; for instance, a management team's unwillingness to disclose carbon emissions and not commit to future disclosure could affect an investment team's ESG analysis.

The Challenge of Company Disclosure on ESG Topics

Companies have variable disclosure policies and reporting. While for listed companies, minimum accounting reporting standards are adhered to, these standards vary from one region to the next. Disclosure of ESG data is often not compulsory under typical reporting standards. Although “material factors affecting financials” is a standard reporting idea, management has large flexibility in what is chosen to be reported. Conversely, over-disclosure can be a problem, 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 might also assume that certain information is of limited importance to investors or is commercially sensitive. ESG information might be available to other stakeholders (e.g., supply chain information to suppliers, supply chain audit to business customers) but not publicly available to investors.

Disclosure varies by geography and is influenced by company size (because of company resources) and industry practice. Certain ESG data might be easier to collect and disclose but might not be considered material by investors. However, in terms of ESG reporting, data might be important to other stakeholders (even if it is not material to investors), so a company might 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 the data 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 2

Assessing What an E Disclosure Might Imply

A cement company discloses its carbon mitigation strategy but discloses only 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.

An analyst might want to ask the following questions:

- ▶ *What is the size of the company?* A company that is smaller with respect to employees, resources, or market capitalization might not be expected to report to the same standard as a larger company, though 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*)?¹¹
- ▶ *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?*

¹¹ IFRS, *IFRS Practice Statement 1: Management Commentary* (2010). www.ifrs.org/issued-standards/list-of-standards/management-commentary-practice-statement/.

- ▶ *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, then judge its willingness to engage or commit to publishing the data. Or the analyst could 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 can 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 might be too strong a red flag for the analyst to recommend any investment.

Another factor to consider is the strength of environmental accounting. Consensus is currently lacking on how best to account for natural capital. Also, how selective disclosure affects firm value is unclear; academic and practitioner work is currently exploring this issue.¹²

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

INVESTMENT DECISION AND PORTFOLIO CONSTRUCTION AND ESG INTEGRATION TECHNIQUES IN PRACTICE (SEVEN CASES)

6



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

¹² Please refer to the following three articles: D. Crilly, M. Hansen, and M. Zollo, "The Grammar of Decoupling: A Cognitive-Linguistic Perspective on Firms' Sustainability Claims and Stakeholders' Interpretation," *Academy of Management Journal* 59(2) (April 2016). <https://journals.aom.org/doi/10.5465/amj.2015.0171>. A. Saad and D. Strauss, "The New 'Reasonable Investor' and Changing Frontiers of Materiality: Increasing Investor Reliance on ESG Disclosures and Implications for Securities Litigation," *Berkeley Business Law Journal* 17.2 (May 2020). https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3590809. F. Zhang, X. Qin, and L. Liu, "The Interaction Effect between ESG and Green Innovation and Its Impact on Firm Value from the Perspective of Information Disclosure," *Sustainability* 12(5) (March 2020). www.mdpi.com/2071-1050/12/5/1866.

Several adapted case studies across equities and fixed income will be highlighted in this section. Although this section does not provide detailed case studies in private equity, infrastructure, or 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 the Further Reading section).

We will look at the following case studies:

- ▶ 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 is provided 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 that 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 have a publicly available environmental management policy
- ▶ the average blend of the rating systems meet a minimum criterion on an E score
- ▶ rebalance quarterly

In practice, for specific mandates, many further detailed rules and conditions can be set 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 earlier parts of this chapter 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 program could 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 analyzed. The following trends are assessed:

- ▶ aging populations that will require more health and well-being products
- ▶ regulations that influence a move toward biodegradable or bio-derived plastics
- ▶ 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 new plant will allow the company to capture more of the value chain in surfactants and to charge a premium because 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 10 years for this. This is embedded in a DCF forecast and a value calculated.

This value is then cross-checked with a P/E ratio. The fund manager is prepared to pay a 50% premium on a P/E basis because of the company's strong sales and earnings growth.

Company A currently trades at only a 10% P/E 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 P/E 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 following:

- ▶ the maintenance of the company's technical leadership through investment in human and physical capital
- ▶ the potential for manufacturing delays or product defects that could affect 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. The following three major areas were considered strong enough that an even higher P/E premium was recommended, and the company was kept in the portfolio:

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 that of its peers, and it had 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 those of the company's competitors:
 - its positioning as enabling smaller, faster, and more energy-efficient electronics
 - its customer-centric approach of providing aftermarket enhancements and refurbishments to improve customers' capital efficiency
 - 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 uses 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 health care insurer and a health care cost management and IT provider managing 5% of US health care 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 the company's 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 modeled 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 to create cheaper, better health care 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 using preventive health care techniques.

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

The team assessed the materiality of all 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.

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 to be a more accurate

method of modeling 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
- ▶ for the downside scenario: normalizing 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.¹³

CASE STUDY 5 – CREDIT ANALYSIS INTEGRATING ESG

This credit investor, when analyzing 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 might 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 could affect the analyst's overall internal rating. Specifically, the analyst might 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 might be material from a financial perspective. For example, because water is a key input for the ingredients used in the company's 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 affect crop yields and prices, increasing the cost of goods sold.

¹³ CFA Institute and PRI, *Guidance and Case Studies for ESG Integration: Equities and Fixed Income* (2018). www.unpri.org/investor-tools/guidance-and-case-studies-for-esg-integration-equities-and-fixed-income/3622.article.

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 the company's final internal credit rating. This credit rating was analyzed to be wrongly priced, 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 (whom 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 labor 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 because of 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-over-year)
2. progress in reducing environmental waste and emissions (water reuse increased 66% year-over-year, while sulfur oxide emissions declined 45% year-over-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 penalized because of 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 that the Russian 10-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 the following:

- ▶ gross domestic product (GDP)
- ▶ inflation
- ▶ government revenue
- ▶ fiscal balance
- ▶ gross debt
- ▶ current account
- ▶ currency reserves
- ▶ 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 because 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 rating 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 because of the absence of clearly defined property rights, international sanctions, and therefore long-term economic growth. These factors weighed on the FSS score.

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

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

The investor judged that Russia's low levels of health spending, coupled with an unfavorable demographics profile, might affect life expectancy negatively. This, in turn, would reduce the overall future workforce, leading to lower productivity and future economic growth, and would likely negatively impact sovereign creditworthiness in the long term. Again, although the social aspect does not have an imminent economic impact, it was judged to be unfavorable 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 favored. This happens because a country with higher standards on all or some factors is believed to 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.

7

DISCUSSION OF PRIVATE MARKETS, REAL ESTATE, AND INFRASTRUCTURE; DISCUSSION OF ESG IN FIXED INCOME AND DIFFERENCES TO EQUITY; AND CHALLENGES TO ESG INTEGRATION

- 7.1.12** apply the range of approaches to ESG analysis and integration across a range of asset classes
- 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

Real assets (including vacant land, farmland, timber, infrastructure, intellectual property, commodities, and private real estate)¹⁴ 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 of existing reporting standards like those of the GRI or like the 2009 **Global Real Estate Sustainability Benchmark (GRESB)**. The materiality frameworks used might have philosophical similarities—as in material ESG factors—but the identification of those factors can differ.

GRESB's full benchmark report (see Chapter 8) provides the following:

- ▶ 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 from the owners and constructors (sometimes called a “split incentive problem”) because tenants must pay ongoing energy bills, whereas constructors do not.

Buildings also have a carbon footprint. An integrated ESG view might look at reducing a building's carbon footprint by using more efficient materials and standards and thereby lowering the risk of impact from carbon prices or deriving gains from energy efficiencies.

¹⁴ D.R. Chambers, K. Black, and N.J. Lacey, *Alternative Investments: A Primer for Investment Professionals* (CFA Institute Research Foundation, Research Foundation Books, 2018). www.cfainstitute.org/en/research/foundation/2018/alternative-investments-a-primer-for-investment-professionals.

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. Current initiatives aim to address these challenges, such as the PRI's reporting framework for infrastructure.¹⁵

In addition, smaller, private companies are often capacity challenged by ESG reporting requirements. Private equity investors might 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*.¹⁶

Another way of looking at this is shown in the GRESB Benchmark Portfolio Report in Chapter 8.

Two case study examples from recent years show the role governance analysis played in the IPO and valuation of Uber¹⁷ and the failed IPO of WeWork.¹⁸

These examples show how ESG can add or detract value.

Asset owners might also assess private equity managers on ESG criteria, especially when 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 the materiality and sustainability frameworks, as well as the ESG techniques equity investors use, to meet their needs. More recently, newer techniques focused specifically on bonds have been used because bonds differ in the following ways:

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

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

Fixed-income investors in corporate bonds might use principles in materiality and ESG frameworks that are similar to those used by equity investors but adapt them to where materiality is different between equity and bonds. Bond investors might

¹⁵ PRI, *PRI Reporting Framework 2019:Direct – Infrastructure* (2019). www.unpri.org/Uploads/l/h/o/09.inf2019_843342.pdf.

¹⁶ British Private Equity & Venture Capital Association, *Responsible Investment* (2021). www.bvca.co.uk/Our-Industry/Responsible-Investment.

¹⁷ D.F. Larcker and B. Tayan, "Governance Gone Wild: Misbehavior at Uber Technologies," *Harvard Law School Forum on Corporate Governance* (20 Jan. 2018). <https://corpgov.law.harvard.edu/2018/01/20/governance-gone-wild-misbehavior-at-uber-technologies/>.

¹⁸ D.C. Langevoort and H.A. Sale, "Corporate Adolescence: Why Did 'We' Not Work?" (8 Jan. 2021). https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3762718.

find ESG factors that affect balance sheet strength (and therefore, the risks of debt defaults) more material than equity investors, who might be more concerned about future growth opportunities.

The opportunity side of ESG might be less relevant for bond investors because what is typically foremost in a bond investor's analysis is the impact of ESG factors on a company's ability to pay its debt obligations. For instance, an equity investor might view a green technology acquisition more favorably than a bond investor would 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 analyze ESG, but borrowing the same materiality frameworks as equity or corporate debt investors has not been easy because some country-level factors (e.g., peace, corruption, ease of doing business, freedom of expression, education levels, and regulatory and legal robustness) might not be material to equity or corporate bond investors. Furthermore, a material factor (e.g., climate or carbon policy) will interact with analysis and valuations differently. Turning ESG analysis into meaningful judgments on the credit ratings or spreads for sovereign nations is therefore difficult. That said, investors have typically integrated certain ESG factors (e.g., political risk and governance factors) into sovereign debt, even if not explicitly labelled ESG.

Municipal credit ESG analysis can differ as well. In the municipal space (region, state, or city) the issuer's governance and management practices can both 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 because of the social benefits. Alternatively, co-primary outcomes are possible, 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 (e.g., a region's air quality and the associated health risks for its constituents) and the quality of public infrastructure (e.g., wastewater treatment plants) can all pose risks that could 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 used can differ across asset classes, as can the type of integration techniques.

Challenges to ESG Integration

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 a lack of audited data.
- ▶ Comparability difficulties include a lack of comparability between ESG ratings agencies, comparisons 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.

The challenges in ESG integration across asset classes arise because different types of assets and different strategies integrate ESG using different techniques.

Challenges from Incomplete Datasets 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, a few challenges exist:

- ▶ ESG data are not consistently reported across companies, geographies, and sectors.
- ▶ Most ESG data are not audited.
- ▶ Some ESG data are not easily available in public databases and are difficult to obtain.

ESG factors can be judged material and useful, but the data might be incomplete. For instance, carbon pollution is often judged material, but it can be measured in at least three scopes: **scope 1, 2, and 3 emissions**. Currently, in the top 2,000 companies in the world, few data are available on scope 3 (as of 2018, 10% of companies reported scope 3, and by 2020, this had increased to 18%),¹⁹ yet evidence indicates 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 because of the different reporting methodologies used. These issues make the 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

A debate is ongoing over ESG data disclosures at a company level. These disclosures vary between companies and regionally. Also ongoing are efforts via organizations such as the SASB and the GRI, and continuous evolution from the IASB on “broader corporate reporting.”²⁰

Surveys suggest that a range of investors view ESG disclosure at companies as inadequate. This might be partly because investors and management teams view materiality differently and might also have conflicting aims. Investors could claim that assessing a material piece of ESG information is difficult without 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 might look like (although again, see the SASB’s evolving work here) and that this might 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 those of equity investors.

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

¹⁹ B. Baker, “Scope 3 Carbon Emissions: Seeing the Full Picture,” *MSCI Blog* (17 Sep. 2020). www.msci.com/www/blog-posts/scope-3-carbon-emissions-seeing/02092372761.

²⁰ IFRS, *Management Commentary* (2021). www.ifrs.org/projects/work-plan/management-commentary/.

Comparability and Materiality Judgment Challenges

ESG ratings agencies use different techniques and assessments so that their 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 might differ between analysts. Many ESG terms are used inconsistently and are difficult for non-specialists to interpret.

These differences can be magnified by 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 European and US companies do on average, which is reflected in the Corporate Governance Code of Japan. Different countries might also put different weights on social factors (e.g., US companies are less concerned about having a policy on work or labor unions than German companies are).

Where materiality can be judged, assessing the level of impact can be difficult, and how ESG factors interact with financial performance over time is uncertain.

The field has many jargon terms (e.g., 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

Because of the different third-party databases, many QESG factors are not agreed upon, and the data are relatively short run. Also, to what degree the ESG factors might correlate with other established quantitative factors, such as “quality,” “value,” or “momentum,” is uncertain. Index-tilting strategies might therefore fail to reflect desired factors appropriately.

Many investment firms have separate ESG analyst teams. This separation can move ESG expertise away from investment decision makers and thereby create a challenge to integration. Perhaps ESG analysts are more junior (perhaps because the focus on this area at, for example, the business school level is still recent), so lower weight is given to 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 provide an integration challenge.

See Chapter 8 for a detailed discussion on this topic.

Investment Firm Culture Challenge

A significant number of investment professionals still do not integrate ESG or believe that ESG has limited financial impact; this can be challenging for teams and within firms. Firms might not have significant resources to buy third-party ESG data, or a firm's global nature might 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 being consistent or explaining across a firm difficult. 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.

Additional resources are typically 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, significant challenges to ESG integration remain.

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 tend to express four primary concerns about the precision, validity, and reliability of ESG investment strategies:

1. Too inclusive of poor companies – ESG mutual funds and exchange-traded funds (ETFs) often hold investments in companies that might be seen 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 sociopolitical factors might be overemphasized. 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 standardize this information.
4. Potential lack of emphasis on 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.²¹ These critics suggest that the time horizon for assessing ESG is too short to prove benefits. Critics also point out time periods during which certain sectors that are often excluded (e.g., tobacco) perform well as evidence that ESG detracts value. Note that as discussed earlier, exclusionary strategies are only one type of strategy, which some investors do not consider part of ESG integration but rather a separate type of investment process.

RANGE OF ESG INTEGRATION DATABASES AND SOFTWARE AVAILABLE

8

- | | |
|--------------------------|---|
| <input type="checkbox"/> | 7.1.16 explain the approaches taken across a range of ESG integration databases and software available, and the nature of the information provided |
| <input type="checkbox"/> | 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 |
| <input type="checkbox"/> | 7.1.18 describe the limitations and constraints of information provided by ESG integration databases |

²¹ D. Vogel, *The Market for Virtue: The Potential and Limits of Corporate Social Responsibility* (Washington, DC: Brookings Institution Press, 2005).

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 (e.g., MSCI, S&P, Sustainalytics, Fitch, and Moody’s)
- ▶ *For-profit boutique providers* that offer speciality ESG products and services (e.g., RepRisk, Urgentum, Truvalue Labs [prior to its October 2020 acquisition by FactSet], and ISS [prior to its November 2020 acquisition by Deutsche Börse AG])
- ▶ *Nonprofit providers* that offer ESG-related products and services (e.g., Carbon Disclosure Project [CDP], IMF economic data, and World Bank, with the World Bank’s ESG data portal; 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 later.
- ▶ **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 indexes** – a set of securities (e.g., stocks, bonds) designed to represent some aspect of the total market by including some ESG criteria in the selection
- ▶ **ESG news and controversy alerts** – a company or a country conducts assessments that highlight events, behaviors, and practices that might lead to reputational and business risks and opportunities
- ▶ **Integrated research** – typically sell-side (investment bank or broker reports) research of contextualized, data-informed, analytical opinion designed to support investment decision making
- ▶ **Advisory services** – ESG strategy, integration, investment process, reporting, and corporate advice. Within this are also many specific ESG-related services, such as the following:
 - class action litigation
 - **Sustainable Development Goals (SDGs)** reporting and alignment
 - carbon and water analysis
 - norms and sanctions
 - policy development
 - real estate assessment
 - factor databases

- supply chain assessment
- assurance services

Exhibit 7 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 earlier in this chapter. See also the exhibit titled “Examples of ESG Indexes, Benchmarks, and Their Methodologies” in Chapter 8.

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, Levine, and Toffel (2009) finds an approximate 0.3 correlation.²² (Or more technically, this analysis found pairwise tetrachoric correlations for three years among the six raters, with a mean correlation of 0.30 [about two standard deviations].) However, this also included some negative ones' correlations, meaning that what one rater found responsible another found “irresponsible.”) A 2019 study by Gibson, Krueger, and Schmidt shows a range of correlations (see Exhibit 8).
- ▶ Yet another study by Berg, Koelbel, and Rigobon (2019) shows a range of correlations as well; Berg et al. look at a dataset of ESG ratings from six different raters: 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 et al. note, “This means that the information that decision-makers receive from ESG rating agencies is relatively noisy.”²³

Berg et al. further suggest:

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.*²³

22 A. Chatterji, D.I. Levine, and M.W. Toffel, “How Well Do Social Ratings Actually Measure Corporate Social Responsibility?” *Journal of Economics & Management Strategy* 18(1) (2009): 125–69. <https://ssrn.com/abstract=1394704>.

23 F. Berg, J.F. Koelbel, and R. Rigobon, “Aggregate Confusion: The Divergence of ESG Ratings” (2019). https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3438533.

Exhibit 7: Summary of Major ESG Service Providers

Product	Bloomberg	Morningstar / Sustainalytics	Deutsche Börse (ISS)	FactSet (TruValue Labs)	LSE (FTSE Russell)	Reuters (Refinitiv)	Moody's (Vigeo Eiris)	Real Impact Tracker	CDP	Real Impact	Investment Consultants	Mercer / Other
Data	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Ratings	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Screening		✓	✓		✓							
Voting advisory		✓										
Benchmarks	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Controversies	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Source: Benjamin Yeoh (2020), also see Publications Office of the European Union, *Study on Sustainability-Related Ratings, Data and Research* (2021). <https://ope.europa.eu/en/publication-detail/-/publication/d7d85036-509c-11eb-b59f-01aa75ed71a1/language-en/format-PDF/source-183474104%E2%80%9D>.

Most of the tools are available only commercially. However, the completeness of coverage varies substantially across ESG tools. The correlations might 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 makes historic comparisons difficult. The different methodologies might 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
- ▶ 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 groupthink 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 rating providers noting the distinction between ratings and raw data.
- ▶ On the other hand, simplicity and correlation could 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 these data differently than they do fundamental active investor judgments.

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

Exhibit 8: ESG Rating Correlation Among Six Third-Party Data Providers

	N	Mean	Median	StdDev	Pearson Correlations				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
				Asset 4	Sust.	Inrate	Bloom.	KLD	
<i>Panel A: Total Rating</i>									
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	

	N	Mean	Median	StdDev	Pearson Correlations				
					(1)	(2)	(3)	(4)	(5)
					Asset 4	Sust.	Inrate	Bloom.	KLD
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	
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: © Rajna Gibson Brandon, Philipp Krueger and Peter S. Schmidt 2021.²⁴

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 raw form or used to determine index weights or processed to determine specific ratings and scores.

The Berg et al. study²³ 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 able to easily identify sustainability outperformers and laggards. Low correlation could 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 might alter a study's conclusions.

²⁴ R. Gibson, P. Krueger, and P. S. Schmidt, "ESG Rating Disagreement and Stock Returns," Swiss Finance Institute Research Paper No. 19-67 (2019). https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3433728.

However, some investors argue that variability in methodology and output can be beneficial for investors and a source of insight, as long as there is transparency about how they have been derived.

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

- ▶ “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 because human judgment is still used.
- ▶ “Nontraditional” ESG data and research providers: More recently, nontraditional providers, such as credit-rating agencies (e.g., Fitch, Moody’s, and S&P), entered the space by acquiring Trucost (2016) and Vigeo Eiris (2019), respectively. As with traditional ESG data and research providers, the level of automation is low or medium because human judgment is still used.
- ▶ AI or algorithm-driven ESG research: Launched more recently, in the past 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 might 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
- ▶ 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
- ▶ the range of tools and services offered

Consensus on ESG ratings is currently limited among investors. In that sense, it is similar to current discussions on sell-side equity research, which 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 because it allows both positive and negative arguments to come to light and to be assessed. However, this is somewhat different from 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:

- ▶ subsector 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
- ▶ drawing deeper insights into associated financial risks for companies

Investors might focus less on company policies and common disclosures, and might also focus less on history and put a stronger emphasis on forward-looking factors.

9

MUTUAL FUND AND FUND MANAGER ESG ASSESSMENT, COMPANY ESG ASSESSMENT AND RATING, PRIMARY AND SECONDARY ESG DATA SOURCES, AND OTHER USES OF ESG AND SUSTAINABILITY SYSTEMS DATA

- | | |
|--------------------------|--|
| <input type="checkbox"/> | 7.1.19 describe primary and secondary sources of ESG data and information |
| <input type="checkbox"/> | 7.1.20 describe other uses of ESG and sustainability systems data |

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

EXAMPLE 3

Morningstar's Sustainability Ratings

As of 2021, Morningstar covered more than 20,000 mutual funds and more than 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, or investment strategy. One key critique of this approach is that holdings-based approaches ignore intentional ESG strategy and that the approach is necessarily backward looking.

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

EXAMPLE 4**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 using a “holdings-based approach,” the RIT assesses

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

EXAMPLE 5**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.

Mercer's investment consultants might look for the following features:

- ▶ 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 organization.

Source: Adapted from Mercer (2018).²⁵

The aim of these types of ESG assessors is to form a view on the ESG integration practices and processes of different fund managers and strategies so that end users, both retail and institutional, can match ESG and investment needs with funds that provide the best fit services. These limitations include:

- ▶ different methodologies (some focus on investment processes, others on portfolio holdings)
- ▶ different data sources or rating providers
- ▶ the unaudited limited data sources

25 The example was adapted from “Mercer ESG Ratings” (2018). www.mercer.com/our-thinking/mercer-esg-ratings.html.

- ▶ the time resource to make the comparisons
- ▶ the relatively nontransparent and noncomparable way these assessments are performed

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 rating providers over the past decade. However, new entrants are still entering.

The different types of assessment include the following:

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

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. Consensus between the databases is limited.

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 the appendix 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 can be attached to a quantitative metric (e.g., the number of female directors or emissions reduced) or to 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.

ESG ratings are primarily based on historical company data and alternative data sources (e.g., media sources). Rating agencies try to synthesize these data to provide investors with information to inform investment decisions. Some ESG rating providers are also developing measures of “climate risk” that attempt to assess forward-looking risk informed by the Paris Agreement and by such initiatives as the Task Force on Climate-Related Financial Disclosures.

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

- ▶ Identify indicators that determine which ESG indicators are most material to the sector in question (see materiality mapping elsewhere in this chapter).
- ▶ 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).
- ▶ 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 a sector-relative score for a company that assesses its performance relative to its peer group or an absolute score—or both.

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

Several rating providers exist, though historically, MSCI and Sustainalytics have had some of the largest market shares in the equity rating space. Country-specific, or more bond-specific, services are also 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 the appendix, 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).²⁶

ESG Index Providers

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

The index typically relies on rules-based criteria assessed on underlying ESG scores or metrics. These criteria then go into a formula to tilt company weightings or exclude entire companies based on ESG scores and hurdles. These scores can 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 indexes 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 indexes 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 can be data based (e.g., carbon emissions) or ratings based (e.g., on a provider's ratings) or a mix of the two. Debates continue as to how well these ETFs capture potential ESG factors.

Primary and Secondary ESG Data Sources

Many ESG databases provide secondary ESG data or ratings. These are assessments transformed by a process of scoring or by 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 via surveys, direct company communication, and company reports, presentations, and public documents.

²⁶ Publications Office of the European Union, *Study on Sustainability-Related Ratings, Data and Research* (2021). <https://op.europa.eu/en/publication-detail/-/publication/d7d85036-509c-11eb-b59f-01aa75ed71a1/language-en/format-PDF/source-183474104%E2%80%9D>.

These public documents can be sourced from nonprofit organizations, such as the *UN Global Compact* or the GRI, as well as the companies' own websites. A primary source might be audited or not audited, but as of 2020, many ESG performance indicators are not audited (though 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, or investment and consulting research.

Indirect assessment can be via a third-party source (e.g., 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 organization (NGO) reports into different segments of ESG.

Some of these data or assessments might be used widely between organizations. For instance, CDP carbon data are used as an input by many of the major ESG rating 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 organizations, both financial and nonfinancial, as well as from regulators, NGOs, and other nonprofit or charitable bodies.

Other Uses of ESG and Sustainability Systems Data

Looking at all aspects, ESG data clearly have 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 earlier in this chapter, regarding quantitative analysis, algorithms and natural language processes are using ESG datasets to determine company quality, reputational risk, and many forward-looking aspects of business strength and valuation. These trends can also be analyzed at the industry or country level. Companies 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 also be carried out at a systems or sector level. This would include assessments of supply chain risk (e.g., from forced labor or supply constraints) or policy changes (e.g., on carbon pricing or water usage).

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

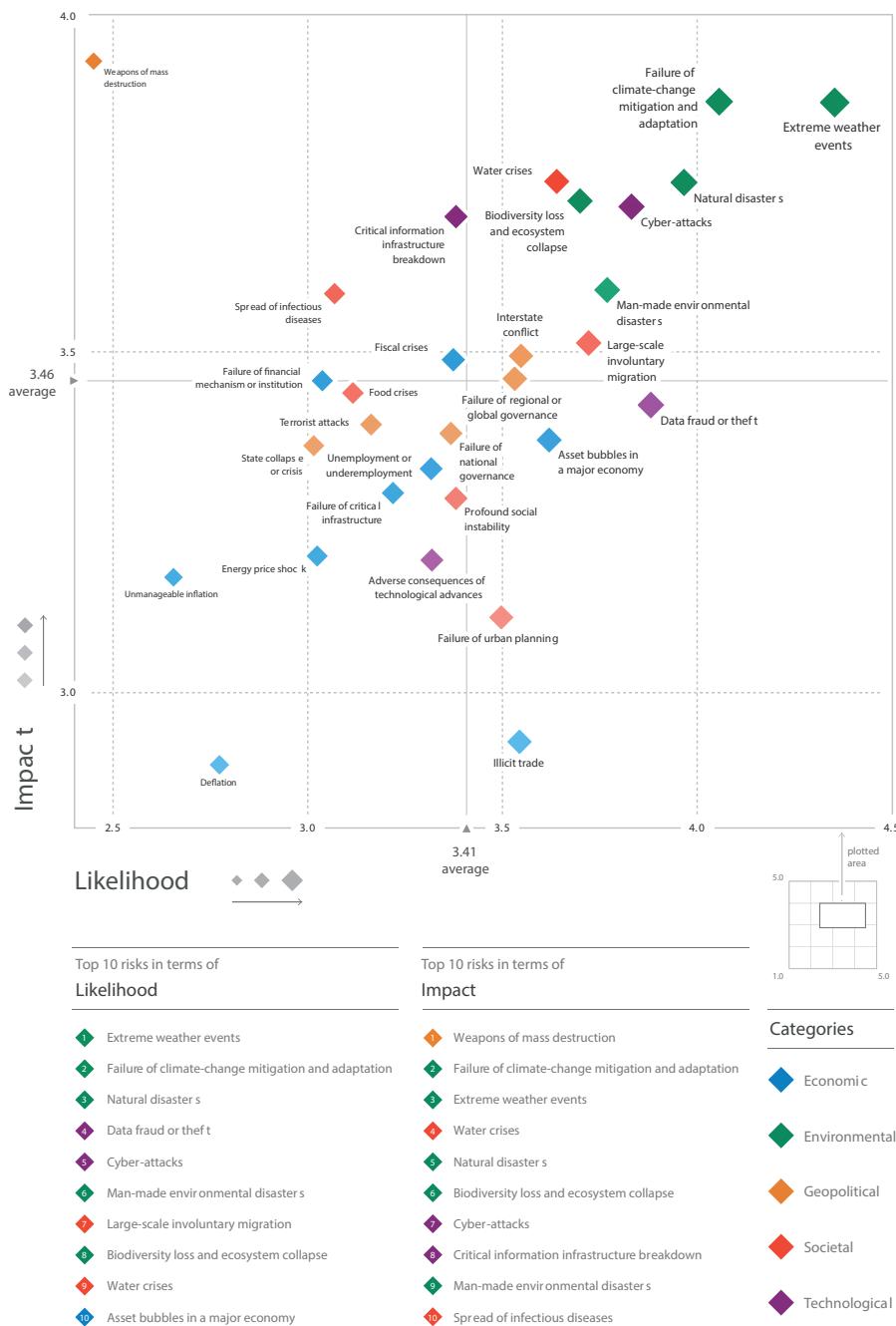
This then ties into resource-, supply-, and operations-related decision making in terms of investments and capital allocation, where investors and companies might decide to invest further money (e.g., low-carbon technology) or withdraw further funding (e.g., thermal coal mines).

Modeling Future Sustainability Scenarios, Including Climate Change, Wage Growth, and Social Effects

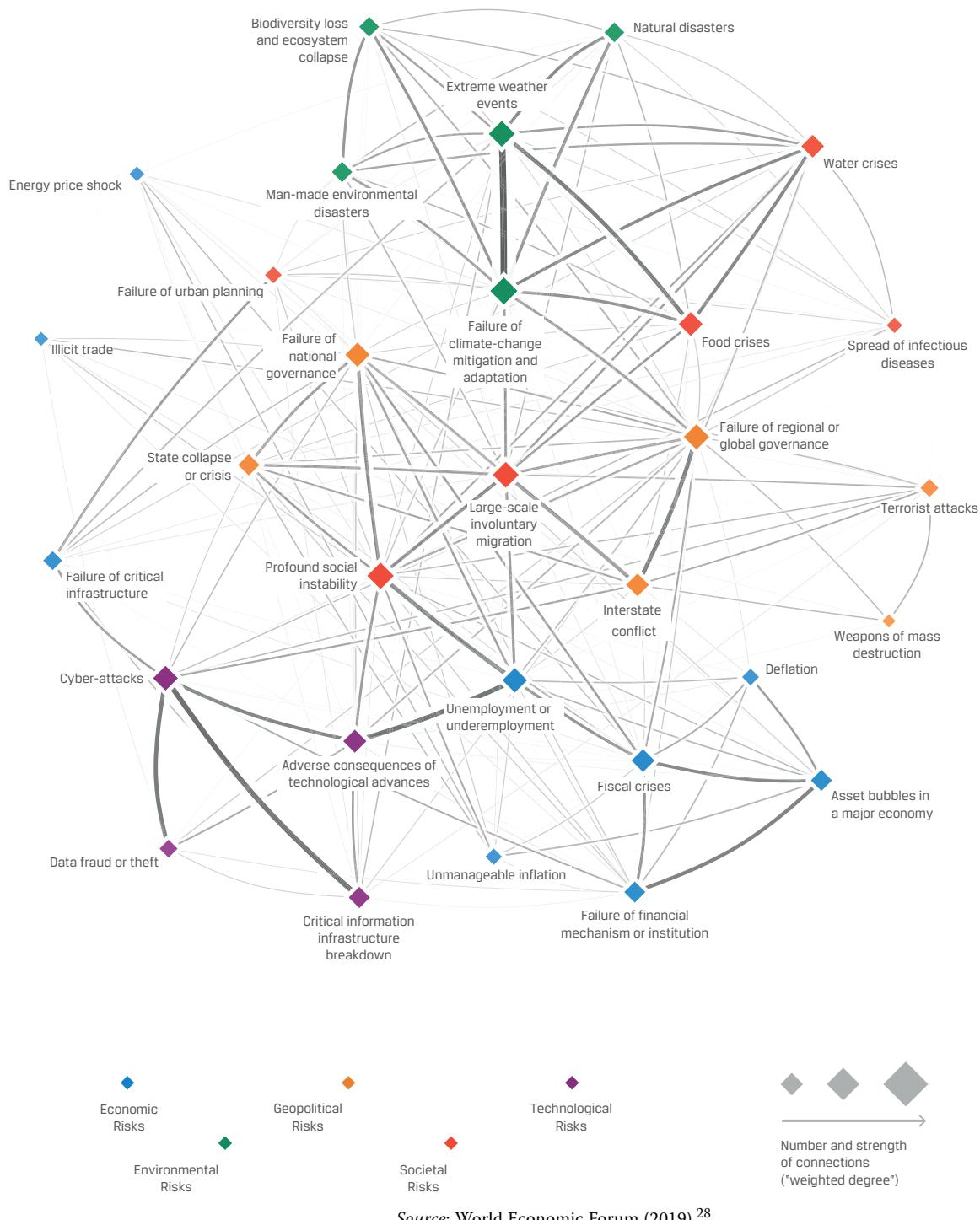
Future scenarios can be useful at the country, industry, and company level, as well as for investors. One example is climate change scenarios. One set of scenarios examines different policy interventions (e.g., levels of carbon tax). These different policy assumptions can then lead to contrasting impacts on fires and storms from varying levels of warming. These natural disasters could then affect companies (e.g., 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 Exhibit 9 and Exhibit 10). Furthermore, some would consider the analysis in Exhibit 10 a form of risk mapping.

Exhibit 9: The Global Risk Landscape 2019



Source: World Economic Forum (2019).²⁷

Exhibit 10: The Global Risk Interconnections Map 2019

See the subsection titled “Materiality Assessments and Risk Mapping” for more information on risk mapping.

Real-Time Dynamic Analysis

The analysis at the frontiers of data science is being extended to real-time analysis. For instance, geospatial data are used to track deforestation, mining, construction, shipping, and traffic, and natural language processes are used 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.

10

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.

Different Levels at Which ESG Factors Can Affect Bond Price Performance and Credit Risk

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 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 (e.g., the idea that utilities are relatively more exposed to climate change risks than media companies).

Some investors assume that some ESG factors might affect a bond's price performance but not actually influence an issuer's creditworthiness. This is because an ESG factor might not be considered to affect bankruptcy risk, even if it might have an 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 also fundamentally protect people's lives. For instance, no one was injured in the 2013 landslide at a Rio Tinto mine in Utah. Rio Tinto's laser scanning system sent early warning signals, enabling a prompt evacuation of the site. However, the 2019 Vale dam failure in Brazil cost many lives.

Continuing Evolution for Credit and ESG Since PRI Releases

Practice in the area of credit and ESG has evolved in the past few years. By 2020, CRAs were in a different place than when the first observations were made by the PRI in 2016–2017, which was when the PRI's Statement on ESG in Credit Risk and Ratings²⁹ 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 May 2022, the statement remains open for investors and CRAs to sign.

Global and Regional Credit Rating 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 it rolled out ESG as part of its credit assessments in 2019. The World Bank also launched its Sovereign ESG database in late 2019. In addition, the IMF launched its Climate Change Indicators Dashboard in April 2021.

Surveys from investors suggest that the G factor remains more important to credit investors than E and S. Credit investors argue that 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
- ▶ 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 elsewhere in this chapter):

- ▶ 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.

29 PRI, *Statement on ESG in Credit Risk and Ratings* (2020). www.unpri.org/credit-ratings/statement-on-esg-in-credit-risk-and-ratings-available-in-different-languages/77.article.

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.³⁰ For example, CRAs may have somewhat ignored environmental damage measurements (e.g., CO₂ emissions of a company) or environmental opportunities.

Before 2016, when analyzing 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. As of 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 response to potential financial and balance sheet or cash flow considerations, such as the ability to meet debt obligations.

In addition, during 2018–2019, 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, such as coal assets).

The levels of litigation risk are often analyzed as well, including environmental litigation, employment litigation, and 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 might test the following:

- ▶ 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—could 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 affect an issuer's ability to generate profits and add to refinancing risks
- ▶ 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.

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

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 QESGs

Certain fixed-income investors use quantitative ESG scores (QESGs) – not to be confused with what investors often mean by quantitative investing (see the section titled “The Different Approaches to Integrating ESG”) – 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 organization. This organization ensures that the financing meets the criteria set out in the bond, though the covenants related to this will vary by different bonds. Debate continues as to what makes a bond “green” because no global consensus exists on the types of capital projects that fit within the scope of green bonds. There are, however, several frameworks, which may start to standardize with the publication of the *EU Green Taxonomy* and with the EU Green Bond Standard potentially evolving in 2021.³¹

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

³¹ European Commission, *European Green Bond Standard* (2021). https://ec.europa.eu/info/business-economy-euro/banking-and-finance/sustainable-finance/eu-green-bond-standard_en.

Sovereign Credit Risk Assessment

A country's competitiveness, 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:

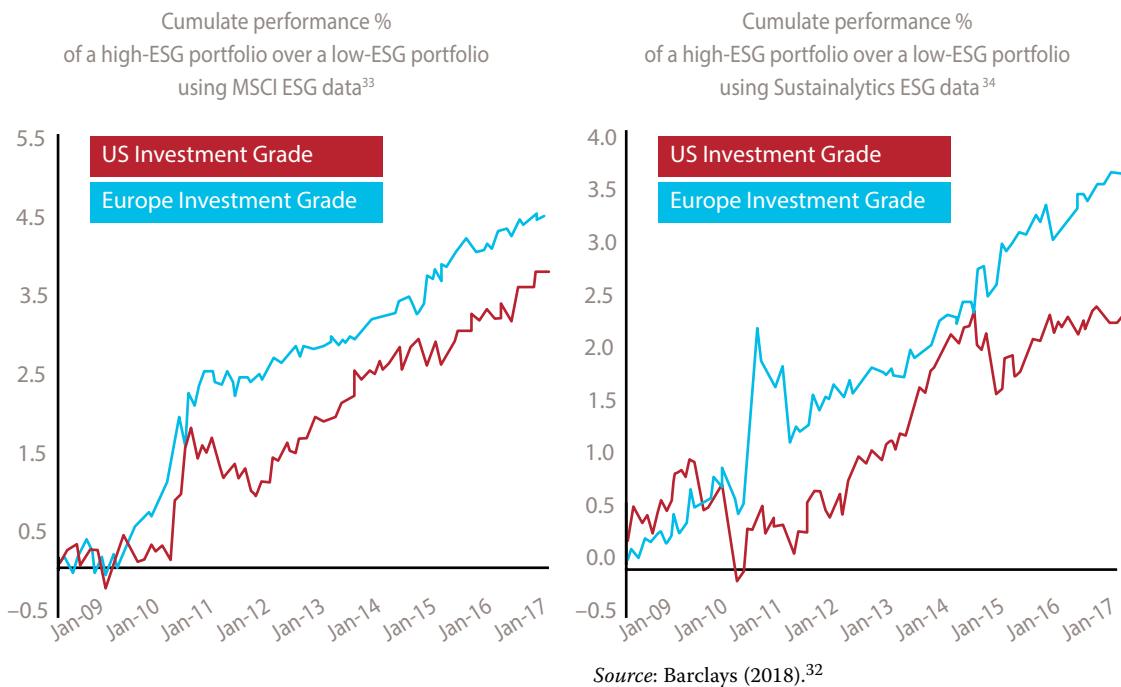
1. economic growth; and
2. governance.

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 analyzed 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 among 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 datasets (MSCI and Sustainalytics).

Exhibit 11: Investment-Grade Bond Portfolio Performance (High ESG over Low ESG)

Source: Barclays (2018).³²

The case for sustainable bond investing strengthens, but critics would point out the flaws of correlational studies as well as the short 2009–18 time period. Critics further point out that the factor attributions post-2008/2009 (the financial crisis), and some ESG ratings correlate with quality factors (though not all).

Portfolio managers are developing more sophisticated approaches beyond simple ESG tilts. 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.

The impact can be seen in the credit default swap (CDS) market as well as on a single-issuer basis, such as with Volkswagen and emissions testing.³³ This would be an argument for the impact an ESG event can have on CDS.

However, the timing of subsequent CDSs 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

³² Barclays, *The Case for Sustainable Bond Investing Strengthens* (2018), Sustainalytics data based on the firm's legacy ESG ratings. www.investmentbank.barclays.com/content/dam/barclaysmicrosites/ibpublic/documents/our-insights/ESG2/BarclaysIB-ImpactSeries4-ESG-in-credit-5MB.pdf.

³³ Multiple sources (including Volkswagen AG), as detailed in P.A. Griffin and D.H. Lont, "Game Changer? The Impact of the VW Emission Cheating Scandal on the Co-Integration of Large Automakers' Securities" (2016). <http://ssrn.com/abstract=2838949>.

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 could suffer bias as is seen in other asset classes. Three key types of bias are typically encountered:

1. Company size bias, where larger companies might obtain higher ratings because of the ability to dedicate more resources to nonfinancial disclosures.
2. Geographical bias, where a geographical bias exists toward companies in regions with high reporting requirements or some other cultural factor (e.g., higher unionization in Europe).
3. Industry and sector bias, where rating 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.”

KEY FACTS

1. Investors integrate ESG techniques to improve investment returns, lower investment risk, meet client needs, and comply with regulatory requirements.
2. A multitude of approaches can be used to integrate 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 because investors typically distinguish between important, material ESG factors and less important, nonmaterial ESG factors. Nonmaterial factors are considered to not affect investment considerations.
5. Primary ESG data come 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, need to be interpreted in the correct contexts.
6. ESG rating agencies use a mix of ESG information and proprietary assessments to give ESG ratings to stocks and credits. Current ESG rating agencies have variable correlation between their ESG ratings because of methodological differences.
7. 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 use ESG assessment to judge investment managers and as part of their decision criteria.
9. Index providers use ESG factors in establishing ESG indexes. 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 because of investor and end-customer demand.

Conclusion

There are many techniques for ESG integration across asset classes, though most investors are aligned in seeking to maximize 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.