



2

Evolution of ESG Reporting Frameworks

Satyajit Bose

Abstract In response to increasing investor demand for non-financial information from companies, a number of sustainability accounting frameworks have evolved to improve standardized disclosure of environmental, social, and governance (ESG) information. These frameworks have created more consistent, readily available, and easily interpreted information for investors to assess the sustainability impact of capital allocation choices. The data that is easy to collect and disclose is, however, far less valuable than information that must be gleaned through complicated processes, extensive due diligence, collaborations with subject-matter experts, and serendipitous insights. ESG frameworks thus face a difficult trade-off between standardized information that is widely demanded and cheaply supplied versus nuanced and esoteric information required to form the basis of strategies capable of delivering market outperformance. Investors seeking *ESG-derived alpha* must thus look beyond these standardized data sources and frameworks for their deeper and more idiosyncratic analyses.

Keywords Global Reporting Initiative · Climate change exposure · Sustainable investing · UN Principles for Responsible Investment · ESG reporting · Carbon disclosure · Corporate sustainability strategy · ESG metrics · ESG-derived alpha · Impact investing · Impact reporting

S. Bose (✉)
Columbia University, New York City, NY, USA
e-mail: sgb2@columbia.edu

Investors, along with a broad range of other stakeholders, increasingly demand disclosure of non-financial information beyond that which is currently available in financial statements. Many investors believe in the societal and private value of integrating environmental, social, and governance (ESG) considerations into financial decision-making as articulated by the UN Principles for Responsible Investment. Others harbor a narrower concern to generate financial outperformance through the pursuit of ESG *alpha*. In addition, modest pressure from some regulatory institutions to analyze the risks of climate change and extreme weather on corporate balance sheets has boosted investor interest in greater disclosure on the impact of global climate change trends on corporate assets and supply chains. There is thus considerable interest in revising accounting and disclosure frameworks to track measures of non-financial performance and incorporate analysis of climate change-related risks and opportunities.

To organize and render consistent the diversity of non-financial information potentially available, a number of sustainability accounting frameworks have evolved over the last quarter-century. Consistent, easily available, and easily interpreted ESG metrics are an essential requirement for any investor effort to measure the impact of capital allocation choices on the natural and social ecosystem. The work of sustainability accounting frameworks to render precision and inter-operability is vital to this task. Even the simplest efforts in this direction have facilitated flows of capital to low-carbon investments and sustainable development-linked funds. On the other hand, to the extent that asset managers integrate deeper sustainability-related knowledge into their pursuit of outperformance, information that is widely or easily known is often far less valuable than information that must be gleaned through complicated processes, extensive due diligence, collaborations with subject-matter experts, and serendipitous insights. It may be too much to expect that widely available and transparent frameworks provide the nuanced and esoteric information required to form the basis of persistent alpha isolation strategies. Investors are right to seek such information, but their search must necessarily lead them beyond the standardized data sources and frameworks.

Sustainability Reporting Frameworks: Logic of Standardization Versus Fragmentation

Methods of Organizing Information

Sustainability reporting frameworks provide a method of categorizing and regulating the semantics of non-financial information. The process of organization incorporates consensus-based typologies, definitions of concepts, controlled vocabularies, and methods of measurement. Frameworks are intended to advance precision, validity, consistency, and inter-operability. Most of the definitions and rules comprising sustainability accounting frameworks remain voluntary, lacking the force of government regulation. As such, sustainability frameworks have something in common with two common voluntary processes to regulate and mediate meaning: the promulgation of standards and the regulation of languages. Both of these activities mediate the varied interests of multiple stakeholders and aim to construct compromises and commonalities that will subsequently be upheld by most stakeholders.

The process of private, consensus-based standard-setting facilitates specialization, scale economies, and reduced transaction costs. In their history of standard-setting within the engineering profession, Yates and Murphy describe the timely and efficient process by which engineering associations and consensus-seeking committees of technical experts in Europe and North America were able to settle on common standards for such mundane but essential choices as screw thread characteristics and shipping container sizes.¹ Of course, the promulgation of standards does create a loss of diversity. For example, the domination of global standard-setting bodies by the United States after 1945 resulted in the elimination of the French and Austrian musical pitch of concert A at 435 hertz, due to the preference of American musicians for 440 hertz.² In any specific application, whether the value of scale economies exceed the value of the loss of diversity is an open question to be determined by the relative values of experimentation, resilience, and network externalities.

Natural languages present an example in which different approaches to standardization and inclusiveness exist in regulation. Natural languages tend to acquire new forms of expression and shed old ones in a decentralized manner. However, the official incorporation of words in dictionaries differs between languages, as exemplified by the much-discussed contrast between the English and French lexicographic methods.³ The Oxford English Dictionary was designed to include everything: dialects, varieties, and the most obscure words from far-flung colonies.⁴ By doing so, it provides a measure

of legitimacy to even the least-used forms of expression. The *Dictionnaire de l'Académie Française*, on the other hand, is not meant to be encyclopedic, historical, or etymological. It is rather intended as a guide to modern usage, with new editions continually eliminating archaic words.⁵ Both approaches validate the meanings of words, but the latter limits what is considered “good usage.” Limiting the range of expression reduces the cost of communication across a network, but also limits what can be communicated. As we will discuss below, this trade-off also applies to the promulgation of reporting standards.

Is Framework Diversity a Weakness or a Strength?

In the context of sustainability accounting frameworks, a multiplicity of approaches to categorizing, defining, and expressing sustainability concepts have emerged. Some observers in the ESG investing community have voiced dissatisfaction at the presence of so many different and conflicting sustainability accounting frameworks. For example, Robert Eccles, a pioneering academic in the field of ESG and the first chairman of the Sustainability Accounting Standards Board (SASB), has stated that “With SASB, GRI [Global Reporting Initiative] and TCFD [Task Force on Climate-related Financial Disclosures], all offering different reporting standards, companies and investors have felt overwhelmed by the ‘alphabet soup’ of arbiters in the ESG industry.”⁶ In a similar vein, Gillian Tett opines that corporate pledges to address climate change “cannot be effective unless we put in place a commonly agreed system to track corporate exposures to climate risk—and right now this does not exist.”⁷ Framework diversity is generally more costly for the corporate issuers who must supply information than it is for the investors who consume such information. Corporate issuers refer to “reporting fatigue” resulting from the need to meet multiple demands for information.⁸

Conversely, there is an argument to be made for the benefits of diversity and the pitfalls of analytical monocultures in the evaluation of ESG performance.⁹ In his bestseller, journalist James Surowiecki writes: “If one virtue of a decentralized economy is that it diffuses decision-making power (at least on a small scale) throughout the system, that virtue becomes meaningless if all the people with power are alike...or they become alike through imitation.”¹⁰ Many ESG ratings providers tout the range of underlying information sources as a strength of their ratings systems. For example, the rating provider CSRHub notes that it integrates information from 691 different sources

in its ESG rating, including ESG analysts, government data, crowd-sourced information, and non-governmental organizations.¹¹

Does the diversity of sustainability accounting frameworks pose an obstacle for investors that reduces the value of communication, or does it bolster the value of experimentation, resilience, and variety of analytical approaches? Is it better to have an “alphabet soup” of arbiters or a single dictatorial one? Clearly, the development of frameworks and standards is an iterative process that continually evolves. It remains perhaps too early to tell whether the frameworks for producing ESG disclosures will evolve into a single global standard with the precision and specificity of screw threads and container sizes or into the more decentralized and plastic guidelines represented by language usage, dialect, and idiom.

Frameworks for Non-Financial Reporting¹²

A broad range of frameworks comprise different typologies and categorizations of aspects of sustainability. A review of the major frameworks available to investors reveals that there is much collaboration among them, and very little duplication or contradiction. With few exceptions, they can be used in tandem. They all rely upon the Triple Bottom Line as a foundational conceptual framework for incorporating non-financial measures of performance into the evaluation of corporate activity.¹³ John Elkington, the leading authority on corporate responsibility and sustainable development, introduced this concept, arguing that corporations should measure their net performance in the following three “bottom lines”: the financial “profit and loss” account, the social “people” account, and the environmental “planet” account. The Triple Bottom Line represents perhaps the most widely accepted foundation for all the frameworks described below.

Global Reporting Initiative: Stakeholder Reporting

The most prevalent expression of a Triple Bottom Line framework for corporate reporting is the Global Reporting Initiative (GRI), which was founded in 1997 by the Coalition for Environmentally Responsible Economies, the UN Environment Program, and the Tellus Institute. In 2016, GRI launched its standards for sustainability reporting based on its 4th version of reporting guidelines launched in 2013. GRI standards are designed to guide the voluntary preparation of sustainability reports, which are generally published separately from regulatory filings. The GRI standards are routinely applied to

specific disclosures and are not mutually exclusive to other frameworks listed herein. In principle, a firm can prepare a sustainability report according to other frameworks while still disclosing key performance indicators computed using GRI standards. GRI is by far the most widely adopted standard for sustainability reporting. Its database lists 7295 sustainability reports for 2017, of which 4202 (58%) were prepared according to GRI guidelines. The intended audience of the GRI consists of a broad range of stakeholders, including investors, consumers, employees, and civil society. GRI's mission is "to empower decisions that create social, environmental and economic benefits for everyone."¹⁴ This focus on a range of stakeholders arises from GRI's origins within the United Nations dialogue around sustainable development, which does not privilege investors alone.

International Integrated Reporting Council: Integrated Reporting for Investors

The Integrated Reporting framework developed by the International Integrated Reporting Council (IIRC) aims to "improve the quality of information available to providers of financial capital to enable a more efficient and productive allocation of capital."¹⁵ The IIRC explicitly targets providers of financial capital, while recognizing that there are multiple forms of capital. It aims to "enhance accountability and stewardship for the broad base of capitals (financial, manufactured, intellectual, human, social and relationship, and natural) and promote understanding of their interdependencies."¹⁶ The IIRC was originally convened jointly in 2010 by the Accounting for Sustainability project of the Prince of Wales Charities and the GRI, drawing on the project's earlier work and on the King reports on corporate governance in South Africa.¹⁷

The IIRC framework proves far more difficult to apply than the GRI guidelines. The Integrated Reporting system is principle-based and requires a re-evaluation of the organization's business model, including how it creates value using the six types of capital outlined in the framework. This represents a radical re-thinking of the value creation narrative. The framework's articulation of the importance of six different types of capital is unique. Appropriately applied, the framework recognizes the importance of different stakeholders in the value creation process. However, the IIRC's 2013 standard has been criticized for its privileging of financial capital, its focus on providers of financial capital to listed companies, and its exclusion of context-based sustainability considerations.¹⁸ Outside of South Africa, where the Johannesburg Stock Exchange has required Integrated Reporting for its listed

companies since 2009, the adoption of the IIRC framework has lagged far behind that of GRI. The number of organizations using the IIRC framework for sustainability reporting amounts to approximately 15% of the number of organizations using the GRI framework.¹⁹

Sustainability Accounting Standards Board: Focus on Financial Materiality for Investors

In contrast to the Global Reporting Initiative (GRI) and in common with the International Integrated Reporting Council (IIRC), the Sustainability Accounting Standards Board (SASB) in the United States has adopted a focus on investors as the primary audience. The SASB Foundation was formed in 2011 by Jean Rogers, under the patronage of Michael Bloomberg, former Mayor of New York City and founder of the Bloomberg information service. The mission of the foundation is “to establish disclosure standards on sustainability matters that facilitate communication by companies to investors of decision-useful information.”²⁰ In 2018, SASB issued 77 different standards covering the minimum sustainability reporting requirements for industries in 11 different sectors. As of 2020, 175 companies had prepared SASB-compliant sustainability reports.²¹

SASB emphasizes the notion of *financial materiality*, meaning that its standards focus on sustainability matters that are “reasonably likely to have a material impact on financial performance or condition.”²² SASB has chosen, through its multi-stakeholder process of standards creation, to identify the specific sustainability issues that are material to each of the 11 sectors for which it has issued standards. SASB has developed the “SASB Materiality Map” to codify its assessment of materiality by sector and issue.²³ The delineation of materiality by sector is based on a judgment about the relative importance to investors of business processes in specific sectors. For example, carbon emissions from fuel combustion is likely to be a more material issue for the transportation sector than for the financial sector. In this vein, according to the Map, business ethics is likely to be a material issue for more than 50% of industries in the financial and healthcare sectors, but less than 50% of industries in the extractives and mineral processing, infrastructure, resource transformation, services, and transportation sectors.²⁴ In determining which issues might be material to a given industry, SASB aims to ease the analytical burden for investors. The Materiality Map lightens the workload of an investment analyst, who can now point to an authority that relieves the duty to perform comprehensive due diligence on a full range of sustainability issues.

Impact Reporting Frameworks for Small and Medium Enterprises

The GRI, IIRC, and SASB frameworks are targeted toward large corporations, the majority of which are publicly traded. These reporting frameworks are most suited to large companies with access to an extensive reporting infrastructure, a range of specialized measurement professionals, and detailed academic research about the links between financial and sustainability performance. In the context of small and medium enterprises, the absence of extensive reporting resources has led to the development of somewhat more simplified reporting frameworks which nevertheless provide comparable measures of performance. Industry observers aiming to increase the level of standardization while reducing *reporting fatigue* are likely to find that these frameworks intended for smaller companies can provide useful examples of easy-to-compute metrics. The three frameworks utilized by a range of smaller companies and community organizations are the Impact Reporting and Investment Standards (IRIS), the B Impact Assessment, and the Future-Fit Assessment.

The Impact Reporting and Investment Standards are a catalog of performance metrics that many impact investors, primarily in private markets, use to measure social, environmental, and financial performance. The standards were designed for recipients of impact investing funds, which tend to be small companies, social enterprises, and community organizations. The standards were developed by the Global Impact Investing Network (GIIN) convened by the Rockefeller Foundation in 2009. In 2011, 29 impact investors signed a letter of support for this framework, committing to use it for the performance measurement of their own funds.²⁵ Since the impact investing community is significantly smaller than the global listed equity marketplace, an initiative supported by 29 organizations in this community carries significantly more weight than it would in the listed equity marketplace.

Two other frameworks, the B Impact Assessment and the Future-Fit Business Benchmark, are also designed for small and medium size enterprises. The B Impact Assessment is administered by the non-profit B Lab and is used to certify businesses into a network of “B Corporations.”²⁶ Benefit corporations and businesses with stated social missions may use a B Lab certification to signal an objective and comprehensive rating of its impact on a range of stakeholders.²⁷ B Lab uses company-generated metrics as inputs in the computation of an impact assessment score that measures value creation for governance, workers, community, and environment. In order to be certified as a B Corp, a company must achieve an integrated score of 80 or above.²⁸ The

Future-Fit Benchmark is a publicly available guideline designed for firms to self-assess the fitness of their mission and operations for a systemically sustainable future.²⁹ The Benchmark is comprised of 23 social and environmental goals which the Future-Fit Foundation deems are minimum requirements for every business to ensure protection of people and planet.³⁰

Climate Change-Related Frameworks

There are a number of frameworks for climate-related indicators, such as the Climate Disclosure Standards Board (CDSB), the Carbon Disclosure Protocol (CDP), and recommendations of the Task Force on Climate-related Financial Disclosures (TCFD). A key distinction should be drawn between efforts that aim to measure the environmental impact of corporate activity, such as the early versions of Carbon Disclosure Protocol, and efforts to measure the impact of changes in environment and climate on corporate balance sheets and financial performance, such as the Task Force on Climate-related Financial Disclosures. The former evaluates the impact of economic activity on ecosystems at large, while the latter evaluates the impact of changing ecosystems on the financial prospects of corporations.

Carbon Disclosure Protocol

The Carbon Disclosure Protocol (formerly known as the Carbon Disclosure Project) is a United Kingdom-based non-profit organization created in 2000 upon the initiative of a coalition of 35 institutional investors interested in using corporate carbon emissions data in their portfolio construction process. The Carbon Disclosure Protocol (CDP) sends questionnaires to the largest publicly traded companies regarding carbon emissions across their operations and supply chains and then compiles responses in a database that is available to the public and subscribers. This repository represents the longest-running time series of corporate climate change disclosures in existence. It has attempted to collect carbon emissions data on all Financial Times Global 500 firms since 2002, and all S&P 500 firms since 2006.³¹ As of May 2020, the CDP's investor membership comprised 515 institutional investors with nearly \$100 trillion in assets under management.³² This level of investor representation makes it highly likely that companies receiving questionnaires will respond. Since the bulk of disclosures are responses to a common questionnaire, there is a high level of consistency across responses. As such, CDP

data is widely used in academic studies of the relationship between environmental disclosure and financial performance. According to Matisoff et al., CDP reporting has contributed to significantly improved transparency for Scope 1 emissions, which stem from an organization's direct activities, and Scope 2 emissions, which represent indirect emissions from electricity use, since 2003.³³ However, the study found that transparency for Scope 3 emissions, which stem from supply chains, product lifecycles, and other indirect sources, remains lacking. There is also some evidence that corporate disclosures of carbon emissions in CDP surveys are more accurate and detailed than those in conventional corporate sustainability reports.³⁴ This finding demonstrates the value of CDP information relative to other disclosures.

CDP has partnered with the United Nations Global Compact (UNGC), World Resources Institute (WRI), and the World Wide Fund for Nature (WWF) to form the Science Based Targets initiative. The initiative provides a corporate emissions reduction target validation service.³⁵ Corporate targets are considered "science-based" if they are deemed consistent with the goals of the Paris Agreement to limit global warming to well-below 2 degrees Celsius above pre-industrial levels and pursue efforts to limit warming to 1.5 degrees Celsius.

Climate Disclosure Standards Board

The Climate Disclosure Standards Board (CDSB) is also a United Kingdom-based non-profit organization, founded at the World Economic Forum in 2007. The organization has published a framework and a set of principles that aim to help businesses report environmental and natural capital information with the same level of rigor that is customary for financial information and to encourage the reporting of consistent climate information that will help investors make decisions about strategy, investment performance, and future prospects.³⁶ The Standards Board has an explicit goal of constructing reporting principles based on other widely adopted standards and frameworks, such as Global Reporting Initiative and the CDP. CDSB has established seven principles for reporting environmental information, including a commitment to relevance, materiality, consistency, and comparability and an effort to be forward-looking. To this end, it is collaborating with Carbon Disclosure Project, Fujitsu, and the global standards consortium XBRL International to develop a climate change reporting taxonomy to facilitate consistency of reporting concepts across scales and geographies.³⁷ This initiative has the potential to eliminate some of the inconsistencies reported among corporate carbon emissions disclosures. In addition, CDSB has worked with

the Task Force for Climate-related Financial Disclosures (TCFD) to launch a hub of information and tools related to climate change disclosure.

Task Force for Climate-Related Financial Disclosures

The Financial Stability Board (FSB) is a group of finance ministries and central banks from G20 countries established after the 2009 G20 summit in London. The Board is hosted and funded by the Bank of International Settlements in Switzerland. The FSB's Task Force for Climate-related Financial Disclosures (TCFD) is the most recent initiative in the context of corporate natural capital disclosure. The Task Force, formed in 2015, is comprised of 31 members selected by the FSB to broadly represent users and preparers of climate change disclosures. The TCFD was a response to a call by Mark Carney, then Chairman of the FSB:

to develop climate-related disclosures that 'could promote more informed investment, credit, and insurance underwriting decisions' and, in turn, 'would enable stakeholders to understand better the concentrations of carbon-related assets in the financial sector and the financial system's exposures to climate-related risks.'³⁸

As outlined in the quote, the TCFD embodies an effort to report on both impacts as well as dependencies on the environment. The TCFD aims to make climate change disclosures more actionable for investment banks, lenders, and insurance underwriters. In this sense, its target audience comprises an array of players who have intermediary roles in the investment ecosystem, rather than investors per se.

The TCFD is an initiative more directly linked to the financial sector than other previous endeavors. It is chaired by Michael Bloomberg, and its six-member secretariat consists of four Bloomberg employees. Almost all members of the task force are from for-profit reporting corporations, financial institutions, insurance companies, and key accounting or ratings providers in the financial ecosystem, with little representation from civil society. According to the TCFD website, as of 2020, more than 1027 organizations support the TCFD.³⁹ In a survey of 485 respondents from among these organizations, the TCFD found that 198 respondents were preparers of TCFD-recommended reports. Of these 198, 67% intend to implement the recommendations in the next 3 years.⁴⁰ Although the TCFD recommendations remain a voluntary framework with no jurisdictional authority, their association with the FSB gives them significant legitimacy within the financial sector because finance

ministries and central banks can apply significant pressure and moral suasion to the financial ecosystem even in the absence of regulation. Nevertheless, the number of actual TCFD reports prepared by corporations will likely fall far short of the number of reports prepared in accordance with GRI standards.

The Sustainable Development Goals as a Sustainability Reporting Framework

In parallel with investor initiatives to broaden performance metrics of companies, the United Nations has pursued a process of expanding the quantitative measures of social and environmental performance, culminating in the development of the Sustainable Development Goals (SDGs) in 2015. The 2015 Goals encourage nations and private actors to conceptualize the triple bottom line of people, profit, and planet and strive for economic growth that balances social and economic development with environmental sustainability. The business sector was far more involved in the formulation of the SDGs than in the earlier Millennium Development Goals (MDGs), and many observers argue that the private sector can bring innovation, responsiveness, efficiency, and targeted skills to the achievement of the goals.⁴¹ Investors directing corporate influence toward achieving SDG targets could have significant beneficial impact. In theory, the investor-driven capital allocation can go beyond creating jobs and fueling economic growth to take on more responsibility in promoting international sustainable development. To this end, the Global Reporting Initiative (GRI), the UN Global Compact, and the World Business Council for Sustainable Development have developed the SDG Compass, which provides a five-step approach to align business strategies with the SDGs: (1) understanding the SDGs; (2) defining priorities; (3) setting goals; (4) integrating; and (5) reporting and communicating.⁴² Business toolkits, standards, and assessment frameworks from third-party organizations such as those described above can assist companies in achieving each of the 17 goals. The SDG Compass website lists 58 such tools, including the Aqueduct Water Risk Atlas, the Corporate Human Rights Benchmark, the Food Loss and Waste Protocol, the Global Protocol on Packaging Sustainability, the ISO 14000 family of standards on environmental responsibility, and the Bribe Payers Index.⁴³

The Statistics Division of the Department of Economic and Social Affairs of the United Nations maintains a list of 231 official indicators that measure progress on the SDGs.⁴⁴ In addition, the Compass maintains an inventory of indicators produced by other organizations such as GRI or the

World Bank which align with specific SDGs. Although investors are not the primary intended audience for SDG indicator information, the concept of the SDGs has proved popular as a feature of investment products. A number of SDG-linked bonds and SDG-aligned investment funds have been launched.

Some Differentiating Attributes of Frameworks

Although there is much in common between the different ingredients of the “alphabet soup,” the frameworks discussed above do differ in emphases. We outline below some key points of divergence.

Stakeholders vs. Investors

A key differentiator between the Global Reporting Initiative (GRI) and Sustainable Accounting Standards Board (SASB) is the former’s focus on a broad range of stakeholders vs. the latter’s target audience of investors. In a joint article in 2017, the CEOs of GRI and SASB write: “Rather than being in competition, GRI and SASB are designed to fulfill different purposes for different audiences. For companies, it’s about choosing the right tool for the job.”⁴⁵

GRI’s recent Standard 206 on disclosure on Tax and Payments to Governments illustrates its applicability for a broad range of stakeholders. In a detailed account of the available methods of valuing intellectual capital and allocating it to tax-advantaged jurisdictions, Wiederhold demonstrates how multinational companies can drastically and legally reduce their tax burden.⁴⁶ GRI’s standard requires public country-by-country reporting of taxes paid by a multinational corporation. Such disclosure would sharply increase transparency for taxing jurisdictions and has the potential to discourage aggressive tax avoidance. In theory, tax avoidance benefits shareholders and certain accounting and tax advisory professionals, but adversely affects the funds available for public infrastructure and social welfare, hurting almost all other stakeholders. Non-shareholder stakeholders have a collective incentive to minimize the adverse effects of aggressive tax avoidance, since they bear a significant share of the burden of externalities that cannot be ameliorated due to precarious government financing. It is perhaps not a coincidence that the shareholder-focused accounting frameworks (IIRC and SASB) have so far failed to propose any standard on tax transparency.

While it is true that an investor may not care in the short term if a company aggressively avoids taxes, in the long run, it is not in the interest of that investor to ignore signals of future pressure against tax-dodging practices. Investors like to be informed. Information intended for other stakeholders is important for investors to know. Hence, GRI standard disclosures are perhaps just as relevant as more targeted SASB disclosures for the investor who is interested in the long-term sustainability of return.

The Meaning of Materiality

SASB differentiates itself from other frameworks through its avowed attempt to codify materiality. Research suggests that corporate managers' focus on material issues by sector increases the value-relevance of their sustainability investments.⁴⁷ However, in a world of disruptive change, the classification of certain issues as negligible and others as critical through a cumbersome and occasional process of standard-setting will produce an inaccurate assessment of materiality. For example, in its Materiality Map, SASB determined that business ethics issues are not likely to be material for the technology and communications sector, despite much evidence to the contrary.⁴⁸ Similarly, an asset manager might be surprised to learn that SASB does not consider data security or customer privacy to be material sustainability issues for the asset management industry. SASB considers data security to be a material issue for commercial banks, but not customer privacy. In 2019, Capital One, a commercial bank and credit card company, announced that its data concerning 100 million U.S. citizens and 6 million Canadian residents had been stolen by a hacker.⁴⁹ While this was clearly a data security issue, it also had adverse impacts on customer privacy. An investor comparing portfolio holdings in Capital One with its competitors would likely care to perform due diligence on Capital One's processes to protect customer privacy. These examples demonstrate that it is a fool's errand to predetermine the types of issues which will be material to an investor in the way SASB purports to. Investors cannot allow themselves the luxury of outsourcing the definition of materiality to a static process administered by a standards-setting body. For example, Carol Adams of Durham University Business School points out:

An investor would be wise not to ignore a narrative disclosure that farmers in a drought-stricken area are complaining to politicians that they need the water used by a bottling plant more. That sort of information might only be gleaned through a company's process of engaging with stakeholders—a process

that the Global Reporting Initiative Standards are unique in requiring them to disclose.⁵⁰

Incommensurable Climate Scenario Analysis

Both GRI and SASB aim to make disclosed key performance indicators comparable across companies. In the case of TCFD, there is little focus on cross-issuer comparability. The TCFD reports that users of climate-related financial disclosures require companies to provide more clarity on the potential financial impact of climate-related issues on their business prospects.⁵¹ TCFD recommends scenario analysis by report preparers, but currently there is very little common guidance on the parameters and assumptions underlying such scenarios. Although the Intergovernmental Panel on Climate Change (IPCC) and the International Energy Agency (IEA) have developed policy-relevant scenario descriptions, there are no “standard scenarios” that incorporate climate change impacts at local scale, climate-related drivers of business performance, and parameters of climate change uncertainty related to business planning assumptions. This makes it impossible to compare TCFD-recommended disclosures across companies, severely limiting the utility of such disclosures for investors. The TCFD cannot be considered a standard in the sense of GRI or SASB. It remains all too easy for companies reporting within this framework to consider idiosyncratic climate risks that are not fully described to investors and then conclude that their business models are resilient to such risks. For example, out of four illustrative company reports highlighted in TCFD’s latest status report, all four declare that their strategies are “resilient” or “robust” to climate risks.⁵²

Why Do Investors Need Information and Can Frameworks Provide It?

One reasonable interpretation of sustainability for the investor is the identification and protection of the sources of repeatable flows of benefits. For the long-term, especially universal investor, a holistic understanding of the drivers of the sustainability of cash flows implies integrating reporting on the levels of natural and human capital that facilitate long-term returns. There is a commonality between the calls of civil society for sustainable development, such as the balancing of economic growth and environmental and social objectives, and the interest of the universal investor in avoiding companies that generate short-term returns from the unsustainable liquidation of natural

and human capital. Furthermore, the widespread recognition of the advent of the citizen investor and dispersed ownership suggests that viewing investors as primarily owners of and lenders to companies is a woefully incomplete description. Today, the investor constituency now intersects far more broadly than in previous centuries with the consumer, employee, and community constituencies. Therefore, a neat separation of the interests of investors and the broader cross-section of stakeholders in the focus of frameworks for sustainability measurement is neither productive nor possible.

At the beginning of this chapter, we outlined two reasons investors may care about ESG information: (1) to assess the impact of corporate activity on environmental and social systems and (2) to identify sources of ESG “alpha.” In service of the first reason, consistent, easily available, and easily interpreted metrics are essential. For this purpose, there is no doubt that standardization and centralized definitions are critical. The establishment of a consistent method of determining Scope 1 and 2 emissions is a prerequisite for determining whether corporate efforts at emission reduction are effective.⁵³ Even relatively simple pieces of information can be incredibly helpful for responsible investor efforts.

Information is also the primary raw material in the process of generating value through a process of security selection, or pursuing ESG “alpha.” In this activity, information that is widely or easily known is far less valuable than information that must be gleaned through complicated processes and extensive due diligence combined with serendipitous insights. To the extent that information is widely available and similarly interpreted, it is likely to be incorporated into asset prices and therefore unlikely to lead to outperformance. An implication of most versions of the efficient market hypothesis is that such information is not worth its costly acquisition. Obscure, hard-to-interpret information, on the other hand, may be valuable for security selection. Widely available and transparent frameworks cannot provide the esoteric information needed to form the basis of alpha isolation strategies. If they could, the low barriers to entry would quickly dissipate any outperformance, obviating the original impetus to gather such arcane information. Investors do seek such information, but their search must necessarily lead them beyond the standardized data sources. The search for arcane but decision-relevant information is exemplified by the alliances forged between active investment managers, Alliance Bernstein and Wellington Management, and climate science institutions, Lamont Doherty Earth Observatory and Woods Hole Research Center, respectively. These alliances have the potential to radically upgrade capital allocation towards eliminating climate risk and funding solutions.⁵⁴

The financial ecosystem needs both types of information: (a) clear and consistent, and (b) inchoate and arcane. Sustainability reporting frameworks

can help with the former. They are likely to have little to contribute to the latter.

What Is Next in the Evolution of Frameworks?

While indicators of sustainability at the issuer level have the potential to improve capital allocation choices for investors, they also provide important metrics of success and intermediate progress for a broader range of stakeholders focused on universal sustainable development. Quantitative metrics of sustainability can transform a vast amount of information about our complex environment into concise, policy-applicable, and decision-relevant information. We have described a number of structured frameworks that limit and categorize the universe of metrics. There is some likelihood of coalescence between frameworks in the near future, although the investor-focused and stakeholder-focused approaches do not share a common vision.

It remains unlikely that a single global standard such as that for screw threads or container sizes will ever dominate the provision of ESG information. It is clear today that the Global Reporting Initiative (GRI) is a far more widely adopted framework than the Sustainability Accounting Standards Board (SASB). SASB's focus on the investor will undoubtedly limit the possibility of garnering the universal legitimacy that a stakeholder-focused initiative, such as GRI, can aspire to. Furthermore, if the geopolitical tensions between the United States and its allies vs. China and Russia observed in the wake of the coronavirus pandemic persist, then the U.S.-centric nature of SASB's approach will diminish its global appeal. Nevertheless, as we have noted earlier, all the frameworks described bring their own foci to bear on the problem of integrating a broad range of ESG metrics into the capital allocation process.

Investors can view the multiplicity of frameworks and metrics as an obstacle or an opportunity. While some bemoan the lack of standardization in frameworks and the consequent leeway in the measurement of sustainability performance, the diversity in investor goals and the shroud of incomplete information underline the value of diverse approaches and experimentation to capturing value through security selection. Adaptability and evolution of frameworks and composite indexes of sustainability is essential because the collective understanding of sustainability remains in flux. Investor motivations are sufficiently diverse that there remain important roles both for simplified, consistent frameworks and also for in-depth, arcane, and hard-to-interpret information.

Notes

1. Yates, J., & Murphy, C. N. (2019). *Engineering Rules: Global Standard Setting Since 1880*. Baltimore, MD: Johns Hopkins University Press.
2. Immerwahr, D. (2019). *How to Hide an Empire: A History of the Greater United States* (1st ed.). New York: Farrar, Straus & Giroux.
3. Estival, D., & Pennycook, A. (2011). L'Academie Francaise and Anglophone Language Ideologies. *Language Policy*, 10(4), 325–341. Retrieved from <https://link.springer.com/article/10.1007/s10993-011-9215-6>.
4. Winchester, S. (2003). *The Meaning of Everything: The Story of the Oxford English Dictionary*. Oxford, UK: Oxford University Press.
5. Estival, D., & Pennycook, A. (2011). L'Academie Francaise and Anglophone Language Ideologies. *Language Policy*, 10(4), 325–341.
6. Temple-West, P. (2019, October 6). Companies Struggle to Digest 'Alphabet Soup' of ESG Arbiters. *Financial Times*. Retrieved from <https://www.ft.com/content/b9bdd50c-f669-3f9c-a5f4-c2cf531a35b5>.
7. Tett, G. (2020, January 16). The Alphabet Soup of Green Standards Needs a New Recipe. *Financial Times*. Retrieved from <https://www.ft.com/content/b3fad18-3851-11ea-a6d3-9a26f8c3cba4>.
8. Pavoni, S. (2020, May 11). Proliferation of Demands Risks 'Sustainability Reporting Fatigue'. *Financial Times*. Retrieved from <https://www.ft.com/content/9692adda-5d73-11ea-ac5e-df00963c20e6>.
9. See pages 114–120 in Bose, S., Guo, D., & Simpson, A. (2019). *The Financial Ecosystem: The Role of Finance in Achieving Sustainability*. London, UK: Palgrave Macmillan.
10. Surowiecki, J. (2004). *The Wisdom of Crowds: Why the Many Are Smarter Than the Few and How Collective Wisdom Shapes Business, Economies, Societies, and Nations*. New York: Doubleday.
11. CSRHub. (2020). *CSRHub: Sustainability Management Tools*. Retrieved from <https://www.csrhub.com/>.
12. This section draws heavily upon and updates material presented in pp. 94–104 of Bose, S., Guo, D., & Simpson, A. (2019). *The Financial Ecosystem: The Role of Finance in Achieving Sustainability*. London, UK: Palgrave Macmillan.
13. Elkington, J. (1998). Partnerships from Cannibals with Forks: The Triple Bottom Line of 21st-Century Business. *Environmental Quality Management*, 8(1), 37–51.
14. Global Reporting Initiative. (2019). *GRI*. Retrieved from <https://www.globalreporting.org/Pages/default.aspx>.
15. International Integrated Reporting Council. (2013). *The International <IR> Framework*. Retrieved from <http://integratedreporting.org/wp-content/uploads/2015/03/13-12-08-THE-INTERNATIONAL-IR-FRAMEWORK-2-1.pdf>.
16. International Integrated Reporting Council. (2013). *The International <IR> Framework*.

17. The Prince's Accounting for Sustainability Project & Global Reporting Initiative. (2010). *Press Release: Formation of the International Integrated Reporting Committee*. Retrieved from <https://integratedreporting.org/wp-content/uploads/2011/03/Press-Release1.pdf>.
18. McElroy, M. W. (2017). With the Changing of the Guard at the IIRC, a Challenge to Richard Howitt. *Sustainable Brands*. Retrieved from <https://sustainablebrands.com/read/new-metrics/with-the-changing-of-the-guard-at-the-iirc-a-challenge-to-richard-howitt>.
19. Bose, S., Guo, D., & Simpson, A. (2019). *The Financial Ecosystem: The Role of Finance in Achieving Sustainability* (pp. 96). London, UK: Palgrave Macmillan.
20. Sustainability Accounting Standards Board. (2018). Mission. *SASB*. Retrieved from <https://www.sasb.org/governance/>.
21. Sustainability Accounting Standards Board. (2020). Companies Reporting with SASB Standards. *SASB*. Retrieved from <https://www.sasb.org/company-use/sasb-reporters/>.
22. Sustainability Accounting Standards Board. (2018). Mission. *SASB*.
23. Sustainability Accounting Standards Board. (2018). SASB Materiality Map. *SASB*. Retrieved from <https://materiality.sasb.org/>.
24. Sustainability Accounting Standards Board. (2018). SASB Materiality Map. *SASB*.
25. Global Impact Investor Network. (2011). *Twenty-nine Impact Investors Sign Letter of Support for IRIS Initiative*. Retrieved from <https://thegiin.org/assets/binary-data/MEDIA/pdf/000/000/19-1.pdf>.
26. B Lab. (2020). About B Corps. *Certified B Corporation*. Retrieved from <https://bcorporation.net/about-b-corps>.
27. Cho, M. (2017). Benefit Corporations in the United States and Community Interest Companies in the United Kingdom: Does Social Enterprise Actually Work? *Northwestern Journal of International Law & Business*, 37(1), 149–172.
28. Nigri, G., & Del Baldo, M. (2018). Sustainability Reporting and Performance Measurement Systems: How Do Small- and Medium-Sized Benefit Corporations Manage Integration? *Sustainability*, 10(12).
29. Future-Fit Foundation. (2019). *Future-Fit Business*. Retrieved from <https://futurefitbusiness.org/>.
30. Kendall, G., & Rich, M. (2019). The Future-Fit Business Benchmark: Flourishing Business in a Truly Sustainable Future. In J. Walker, A. Pekmezovic, & G. Walker (Eds.), *Sustainable Development Goals: Harnessing Business to Achieve the SDGs Through Finance, Technology, and Law Reform* (pp. 235–252). Hoboken, NJ: Wiley.
31. Kim, J. (2018). *A Multi-Step Model of Boundary Spanning and Absorptive Capacity: The Differential Impact of Board and Top Management Team Experience on the Development of Sustainability-Related Capabilities* (Doctoral dissertation, Arizona State University). ProQuest Information & Learning.
32. CDP. (2020). What We Do. *CDP*. Retrieved from <https://www.cdp.net/en/info/about-us/what-we-do>.

33. Matisoff, D. C., Noonan, D. S., & O'Brien, J. J. (2013). Convergence in Environmental Reporting: Assessing the Carbon Disclosure Project. *Business Strategy & the Environment*, 22, 285–305. <https://doi.org/10.1002/bse.1741>.
34. Depoers, F., Jeanjean, T., & Jérôme, T. (2016). Voluntary Disclosure of Greenhouse Gas Emissions: Contrasting the Carbon Disclosure Project and Corporate Reports. *Journal of Business Ethics*, 134(3), 445–461. Retrieved from https://www.jstor.org/stable/24703782?seq=1#metadata_info_tab_contents.
35. Science Based Targets. (2020). About the Science Based Targets Initiative. *Science Based Targets*. Retrieved from <https://sciencebasedtargets.org/about-the-science-based-targets-initiative/>.
36. Climate Disclosure Standards Board. (2020). Framework for Environmental and Climate Change Information. *Climate Disclosure Standards Board*. Retrieved from <https://www.cdsb.net/what-we-do/reporting-frameworks/environmental-information-natural-capital>.
37. Climate Disclosure Standards Board. (2020). XBRL Project Governance. *Climate Disclosure Standards Board*. Retrieved from <https://www.cdsb.net/priorities/xbrl/xbrl-project-governance>.
38. Task Force on Climate-Related Financial Disclosures. (2017). *Final Report: Recommendations of the Task Force on Climate-Related Financial Disclosures*. Retrieved from <https://www.fsb-tcfd.org/wp-content/uploads/2017/06/FINAL-TCFD-Report-062817.pdf>.
39. Task Force on Climate-Related Financial Disclosures. (2020). *Task Force on Climate-Related Financial Disclosures*. Retrieved from <https://www.fsb-tcfd.org/>.
40. Task Force on Climate-Related Financial Disclosures. (2019). *2019 Status Report*. Retrieved from <https://www.fsb-tcfd.org/wp-content/uploads/2019/06/2019-TCFD-Status-Report-FINAL-053119.pdf>.
41. Scheyvens, R., Banks, G., & Hughes, E. (2016). The Private Sector and the SDGs: The Need to Move Beyond 'Business as Usual'. *Sustainable Development*, 24, 371–382. Retrieved from <https://doi.org/10.1002/sd.1623>.
42. GRI, UN Global Compact, & WBCSD. (2015). *SDG Compass: The Guide for Business Action on the SDGs*. Retrieved from https://sdgcompass.org/wp-content/uploads/2015/12/019104_SDG_Compass_Guide_2015.pdf.
43. GRI, UN Global Compact, & WBCSD. (2015). Inventory of Business Tools. *SDG Compass*. Retrieved from <https://sdgcompass.org/business-tools/>.
44. United Nations. (2020). SDG Indicators. *Sustainable Development Goals*. Retrieved from <https://unstats.un.org/sdgs/indicators/indicators-list/>.
45. Mohin, T., & Rogers, J. (2017). How to Approach Corporate Sustainability Reporting in 2017. *GreenBiz*. Retrieved from <https://www.greenbiz.com/article/how-approach-corporate-sustainability-reporting-2017>.
46. Wiederhold, G. (2014). *Valuing Intellectual Capital: Multinationals and Taxhavens*. New York: Springer Science.
47. Khan, M., Serafeim, G., & Yoon, A. (2016). Corporate Sustainability: First Evidence on Materiality. *Accounting Review*, 91(6), 1697–1724. Retrieved from <https://doi.org/10.2308/acrr-51383>

48. Bose, S., Guo, D., & Simpson, A. (2019). *The Financial Ecosystem: The Role of Finance in Achieving Sustainability* (pp. 98). London, UK: Palgrave Macmillan.
49. McLean, R. (2019, July 30). A Hacker Gained Access to 100 Million Capital One Credit Card Applications and Accounts. *CNN Business*. Retrieved from <https://www.cnn.com/2019/07/29/business/capital-one-data-breach/index.html>.
50. Adams, C. A. (2020, January 23). Investors Are Asking the Wrong Questions on Sustainability. *Financial Times*. Retrieved from <https://www.ft.com/content/7f9fd437-30fd-4f0a-9aa1-faa61dcbb399>.
51. Task Force on Climate-Related Financial Disclosures. (2019). *2019 Status Report*.
52. Task Force on Climate-Related Financial Disclosures. (2019). *2019 Status Report*.
53. Temple-West, P. (2019, October 6). Companies Struggle to Digest 'Alphabet Soup' of ESG Arbiters. *Financial Times*; Tett, G. (2020, January 16). The Alphabet Soup of Green Standards Needs a New Recipe. *Financial Times*.
54. AllianceBernstein. (2019). *Collaboration with Columbia on Climate Change and Investing*. Retrieved from <http://www.alliancebernstein.com/abcom/email/retail/2019/documents/columbia-climate-collaboration.pdf>; McGlinchey, D. (2018). *Wellington Management and Woods Hole Research Center Announce Strategic Climate Science Initiative*. Woods Hole Research Center. Retrieved from <https://whrc.org/wellington-management-and-woods-hole-research-center-announce-initiative/>.