

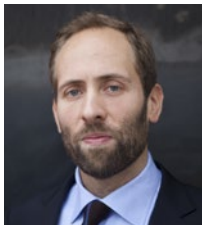
SFI Public Discussion Note

Sustainable Finance Metrics



October 2021

1. Introduction



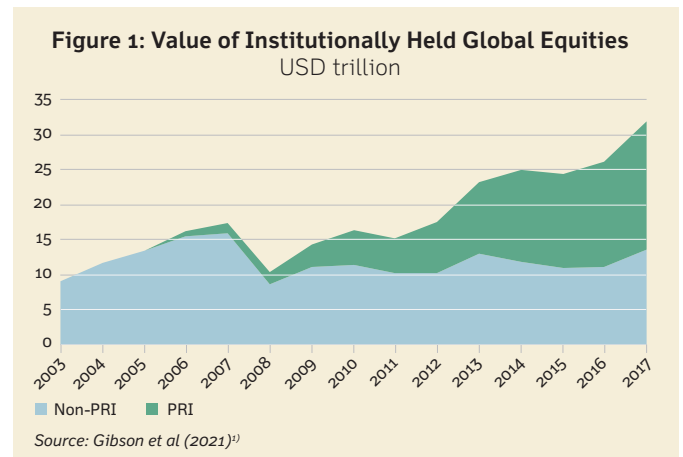
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Sustainability has emerged as one of the most profound societal trends of our time, and finance is not isolated from this development. To accommodate sustainability, many financial institutions now include environmental, social, and governance (ESG) considerations in their investment decisions.

To illustrate how important sustainability has become, Figure 1 plots the fraction of global equities held by financial institutions that have signed the UN-supported Principles for Responsible Investing (PRI), compared to those that have not signed. PRI is a UN-supported network of investors that works to promote sustainable investment.



In 2006, institutionally owned equities managed by PRI signatories were negligible. In contrast, global equities held by PRI signatories had increased to more than USD 18 trillion out of a total of USD 32 trillion by 2017, suggesting that more than fifty percent of global institutionally owned equities are now held by PRI signatories. This change suggests that the average institutional equity investor is now at least publicly committed to incorporating sustainability into its decision-making.

With its Public Discussion Note series the Swiss Finance Institute (SFI) is actively promoting a well-founded discussion of topics relevant to the financial industry, politics, and academia. Furthermore, SFI disseminates its findings through research, publications, Master Classes, conferences, and continuing education courses.

¹⁾ Gibson, R., Glossner, S., Krueger, P., Matos, P., & Steffen, T. (2021). Do responsible investors invest responsibly?. Working paper.

One of the challenges facing such investors is to accurately measure and quantify the sustainability characteristics of their investments, that is, to construct meaningful *sustainable finance metrics*. Such metrics would allow investors and firms to evaluate whether progress is being made toward achieving a more sustainable society. They would also reduce the risk of greenwashing, i.e., of unsubstantiated claims being made about the environmental benefits of investment products.

In this SFI Public Discussion Note (PDN), we address several topics relevant to the debate on sustainable finance metrics. We start by highlighting

the key challenges in quantifying sustainability, then briefly discuss currently available measures. We devote a substantial part of this PDN to sustainability disclosure, highlighting some of the existing voluntary and regulatory approaches. We then zoom in on the commonly raised criticism that sustainable finance metrics for the same firm, but issued by different data providers, diverge. We shed light on why such divergence exists, and on how big the disagreement actually is. We then offer suggestions on ways to improve the current sustainable finance metrics. We finally conclude with some policy recommendations.



2. Why Is It Challenging to Measure Sustainability?

There are many reasons why it is difficult to construct consistent and meaningful metrics that are useful when making sustainable finance decisions.

First, sustainability is a multi-dimensional concept. It encompasses a diverse set of ESG issues, e.g., climate change and carbon emissions, human rights, executive compensation, etc. These issues, especially those related to climate change, often focus on long term risks and opportunities. In addition, the relative importance of a specific sustainability issue, when constructing an overall sustainable finance metric, is to some extent a normative and subjective question. Researchers have argued, for instance, that the social origins of the ESG data vendors play a role in determining the methodological importance of individual ESG issues. Data providers in civil law countries (e.g., France, Germany, etc.) might weight issues relating to workers more strongly, for example, while those in common law countries (e.g., Canada, the US, and the UK) might focus more on issues that are financially relevant to shareholders. Besides the breadth of issues that typically need to be subsumed in sustainable finance metrics (e.g., climate change, inequality concerns, and topics related to the seventeen UN Sustainable Development Goals), these metrics are supposed to measure not only quantitative, but also qualitative aspects.

Another challenge in constructing sustainable finance metrics relates to the concept of materiality. Some metrics exclusively capture issues that are financially material to the firm and thus relevant to the providers of capital (e.g., shareholders or lenders). Others are guided by the idea of *double materiality*; these aim to capture not only issues that are financially material to the firm, but also those through which the firm materially affects the well-being of a broader set of stakeholders

(e.g., communities and workers), the environment, or society in general. In other words, the concept of double materiality tries to aggregate both positive and negative externalities. As a result, metrics based on double materiality are relevant not only to the firms and their providers of capital, but potentially to a much broader audience (e.g., politicians, civil society, regulators, and NGOs). The larger potential audience of these metrics also makes their construction more difficult.

The availability and homogeneity of data, or the lack of both, also hamper the construction of sustainable finance metrics. Despite ongoing regulatory efforts, the firm-level disclosure of sustainability information remains to a large extent voluntary, or at least non-prescriptive. The information provided by firms and investors remains mostly unstructured and sometimes incomplete, making benchmarking and the comparison of firms difficult. In addition, the rating methodologies used by data providers are often opaque and can change over time, hindering any time-series comparisons.

Overall, judging the quality of sustainable finance metrics is challenging due to the difficulty of observing realizations of a firm's true sustainability performance, in stark contrast to metrics that predict a firm's financial characteristics. For earnings per share (EPS) forecasts or credit ratings, for instance, analysts observe realizations at regular intervals and in a well-defined and globally standardized format. In contrast, perhaps the most meaningful signal of a firm's true sustainability performance is provided when the firm is involved in scandals or receives negative news coverage related to a sustainability issue.

3. What Sustainable Finance Metrics Are Currently Available?

At present, sustainable finance metrics exist mostly at the firm and the investor (or investment product) level. Most often these measures are sold by third party data providers, who rely on proprietary, unstandardized, and often unobservable methodologies. The sector of firms involved in producing sustainable finance metrics has seen a dramatic wave of consolidation over the last few years, leading to the almost complete disappearance of small and specialized stand-alone firms.

Sustainable finance metrics are currently offered by large financial data and index providers (e.g., FTSE and MSCI), by financial information providers (e.g., Bloomberg and Refinitiv), and most recently by the large credit rating agencies (e.g., Moody's and S&P). In contrast to credit ratings, which have an issuer-pay model, sustainable finance metrics are typically sold under a user-pay model. Hence, the cost of these ratings is borne by the asset managers and asset owners who use them in their investment decision-making processes.

3.1. Firm-level sustainability scores

Historically, sustainable finance metrics were used to characterize the ESG quality of a firm's operations. Data companies collected publicly available ESG information from official disclosure documents (e.g., annual reports, sustainability/CSR reports) and also requested information from firms through questionnaires. These data were combined with data on controversies (or negative incidents) from third parties, such as NGOs or the press, to construct an overall score of how well each firm managed ESG issues. Given the focus on the firm's operations—and not on its products or services—firms with potentially unsustainable products (e.g., fossil fuel producers) could have good firm-level ESG scores, their good ESG policies compensating for the poor sustainability characteristics of their products. For instance, it is well known that tobacco-producing companies offer exceptional working conditions to their employees. Another reason why companies, that one might suspect to be

highly unsustainable, could have good sustainability metrics is related to the concept of best-in-class. Many of the currently available measures are relative, not absolute assessments of sustainability: An oil company's environmental processes are compared to those of other oil companies, while a firm's governance processes are compared to those of other firms incorporated in the same country. Such best-in-class assessments can give rise to highly surprising sustainability assessments.

Recently, interest has moved toward measuring a firm's sustainability by quantifying the impact of the products and services its sells. This approach is more promising than the historical focus on the ESG policies of firms and investors. These newer measures assess whether and how a firm's products and services contribute to sustainable development, based most often on financial data and segment reporting. For instance, FTSE provides estimates on firms' "green revenues," i.e., their revenue exposure to products and services that deliver environmental solutions.

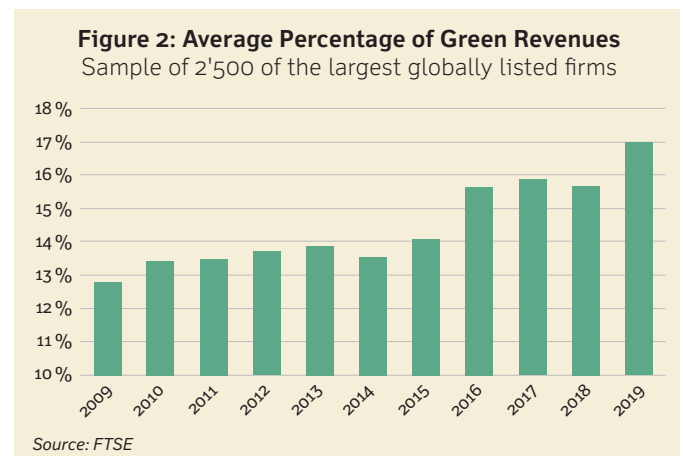
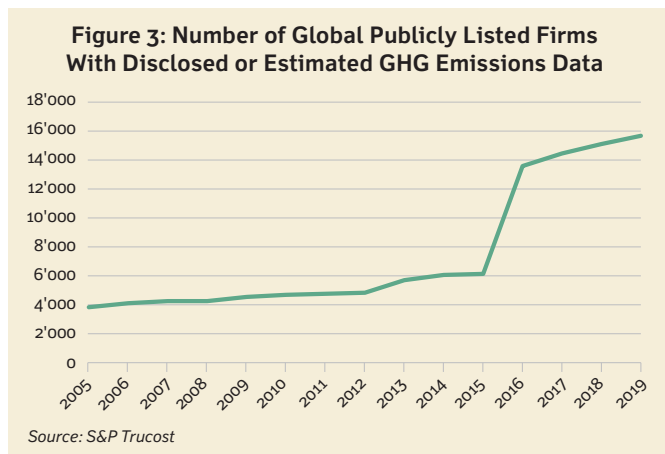


Figure 2 plots the evolution of the average firm's green revenues according to FTSE between 2009 and 2019. To construct this graph, we used a sample of 2'500 large, global, and publicly listed firms. For each firm, FTSE estimates the fraction of its revenues having a beneficial effect on the environment. The

data show that public firms have only modestly increased the sale of environmentally sustainable products over the last decade, suggesting that more commercial solutions to environmental challenges are needed. Note that these estimates do not represent EU Taxonomy aligned green revenues.

While the early measures of ESG were general, recently more attention has been paid to climate-specific data. There are now measures of the greenhouse gas (GHG) emissions for which a firm is responsible, for example, and whether the firm has GHG reduction targets. Figure 3 shows that data (either estimated or reported) on publicly listed firms' GHG emissions are increasingly available, particularly since 2016.



Besides these firm-level measures, investor- or investment product-level scores are also increasingly widespread. These scores are typically based on two components. First, they use information on the policies of the company offering the investment product, such as reports by investment firms on the processes and strategies they use to incorporate sustainability considerations into their products. Second, they construct sustainability metrics at the level of the investment product using the average sustainability characteristics of the investment products' holdings (or investments). Calculating the average sustainability characteristics of an investment products' holdings is somewhat similar to calculating the average return of an investment product (i.e., a weighted average of its components).

Recent innovations in sustainable finance metrics include the use of artificial intelligence and crowd sourcing. Some data providers now rely on big data and natural language processing to construct more timely sustainable finance metrics.²⁾ Another idea is to use the "wisdom of the crowd" to quantify a firm's social and environmental impact; the Geneva-based company Impaakt³⁾ uses this approach. In a recent research project, we also found that survey-based crowd measures can deliver highly plausible rankings of a sector's sustainability performance.⁴⁾

2) Hughes, A., Urban, M. A., & Wójcik, D. (2021). Alternative ESG ratings: How technological innovation is reshaping sustainable investment. *Sustainability*, 13(6), 3551.

3) <https://www.impaakt.com/>

4) Krueger, P., Metzger, D., & Wu, J. (2021). The sustainability wage gap. *Working paper*.

4. Voluntary and Regulatory Approaches to Sustainability Disclosure

4.1. Voluntary approaches: Standards and frameworks

Most of the information used to construct sustainable finance metrics is still provided by firms and investors on a voluntary and non-standardized basis. While the availability of sustainability-related data has clearly improved—particularly in recent years—some observers and academics note that these voluntary disclosures are still fairly generic, of a boilerplate nature, and thus of limited use. In addition, the voluntary disclosures and the resulting information gaps severely hamper cross-firm and cross-investor comparisons.

To help firms and investors prepare their sustainability disclosures and, ultimately, to contribute to the construction of meaningful, decision-useful, comparable, and coherent sustainable finance metrics, a host of guidelines and frameworks coexist. At the firm-level, the most used framework is that provided by the Global Reporting Initiative (GRI), an independent standards organization. The GRI's sustainability disclosure standards follow a double-materiality philosophy, i.e., helping a firm disclose not only its financially material sustainability information but also information on how it affects the well-being of other stakeholders. In the US, the framework provided by the Sustainability Accounting Standards Board (SASB) is receiving a lot of attention, in particular from large institutional investors. SASB focuses on identifying and defining sector-specific sustainability disclosures that are deemed financially material. More recently, the International Financial Reporting Standards (IFRS) Foundation, has entered the arena. This nonprofit accounting organization is developing and promoting the IFRS through the International Accounting Standards Board. The IFRS sustainability disclosure framework, to be released later this year, will focus on the disclosure of financially material sustainability information only. The European Financial Reporting Advisory Group (EFRAG) is also working on a set of sustainability standards. While GRI, SASB, IFRS, and EFRAG provide disclosure frameworks aimed at

many different sustainability-related topics, other more specialized frameworks also exist. Most notably, the framework of the Taskforce for Climate Related Financial Disclosures (TCFD) provides guidance for climate related disclosures in four blocks (i.e., 1. Governance, 2. Strategy, 3. Risk Management, and 4. Metrics and Targets).

At the investor level, there is also an increasing number of guidelines and frameworks on sustainability disclosure. For climate-related disclosures, it should be noted that the recommendations provided by the TCFD can also be applied by asset managers and asset owners. In addition, the industry association Swiss Sustainable Finance has published a set of recommendations aimed at helping asset managers and owners structure their sustainability disclosures.⁵⁾ The CFA Institute is also in the process of publishing a set of voluntary guidelines for investors' sustainability disclosures.⁶⁾ The main objective of such investor-level frameworks is to enhance comparability across investors and reduce the risk of greenwashing (or impact- and rainbow-washing), i.e., investors making misleading or unsubstantiated claims about the environmental and/or sustainability benefits of their investment portfolios or products.

4.2. Regulatory approaches to disclosure

Given that voluntary approaches to sustainability disclosure have existed for a long time and, one could argue, have not produced satisfactory outcomes, sustainable finance is receiving increased attention from regulators and policy makers around the world.

4.2.1. European Union

The European Union has taken the strictest regulatory approach to sustainable finance in general, and to sustainable finance metrics in

5) Swiss Sustainable Finance. (2021). *SSF reporting recommendations on portfolio ESG transparency*.

6) CFA Institute. (2021). *ESG disclosure standards for investment products*.

particular. In 2016 the EU set up a High-Level Expert Group (HLEG), consisting of senior experts from civil society, the finance sector, academia, and observers from European and international institutions. This group was asked to provide advice on how to (i) increase the flow of public and private capital toward sustainable investments, (ii) identify the steps that financial institutions and supervisors should take to protect the stability of the financial system from risks related to the environment, and (iii) deploy these policies on a pan-European scale.

The group published a Sustainable Finance Action Plan in 2018⁷⁾, which led to the adoption of several measures, including three legislative proposals relevant to sustainable finance metrics. These are:

1. A regulation creating a unified classification system (or "taxonomy") of environmentally sustainable economic activities.
2. A regulation amending the existing EU benchmark regulations, creating a new category of low-carbon and positive carbon impact benchmarks.
3. A regulation requiring institutional investors and asset managers to disclose how they integrate environmental, social, and governance (ESG) factors in their risk-assessment processes.

4.2.1.1. The EU taxonomy⁸⁾

The EU taxonomy defines a set of technical screening criteria that clarify which economic activities contribute the most to meeting two of the EU's environmental goals: climate change adaptation and climate change mitigation. The taxonomy was developed by a Technical Expert Group on Sustainable Finance, composed of members from civil society, academia, business, and the finance sector, along with additional members and observers from the EU and international public bodies. The EU has recently worked on an extended environmental taxonomy and also a social taxonomy. These are not finalized yet and the

European Commission is due to decide on the way forward at the end of 2021.⁹⁾

4.2.1.2. Climate benchmarks¹⁰⁾

The Sustainable Finance Action Plan also proposed amending the existing benchmark regulations. As a result of the action plan, two types of climate benchmarks were created: EU Climate Transition Benchmarks and EU Paris-aligned Benchmarks. The amended regulations set out the minimum technical requirements (e.g., in terms of reduction of carbon emissions and exposure to specific sectors) needed to comply with each EU climate benchmark designation. Besides introducing the new climate benchmarks, the regulations also set out ESG disclosure requirements that apply to all investment benchmarks.

4.2.1.3. Sustainable Finance Disclosure Regulation (SFDR)

The EU has also enacted new regulations regarding investors' sustainability disclosures. The Sustainable Finance Disclosure Regulation (SFDR) took effect in 2021 and is expected to be fully applied by the end of 2022. The SFDR imposes mandatory ESG disclosure obligations on asset managers and other financial market participants. It requires asset managers to provide standardized disclosures on how ESG factors are integrated into their investment processes. These disclosures are to be provided both at the entity- and the investment product-level. In addition to these qualitative disclosures, the SFDR will also require the disclosure of quantitative indicators. These indicators are related to (i) climate and the environment, (ii) social matters and

7) Financial Stability, Financial Services and Capital Markets Union. (2020). *Renewed sustainable finance strategy and implementation of the action plan on financing sustainable growth*.

8) https://ec.europa.eu/info/business-economy-euro/banking-and-finance/sustainable-finance/eu-taxonomy-sustainable-activities_en ; https://ec.europa.eu/commission/presscorner/detail/en/IP_21_1804

9) <https://www.moodyanalytics.com/regulatory-news/jul-12-21-eu-platform-seeks-views-on-environmental-and-social-taxonomy-proposals>

10) https://ec.europa.eu/info/business-economy-euro/banking-and-finance/sustainable-finance/eu-climate-benchmarks-and-benchmarks-esg-disclosures_en

treatment of employees, including respect for human rights, and (iii) anti-corruption and anti-bribery matters.

4.2.1.4. Corporate Sustainability Reporting Directive (CSRD)

A cornerstone for constructing investor-level sustainability metrics is the provision of sustainability information by firms. Since 2014, EU law has required certain large companies to disclose how they manage social and environmental issues. The so-called Non-Financial Reporting Directive (NFRD) laid down rules on disclosure of non-financial and diversity information for large companies. These rules currently apply to large public-interest companies with more than 500 employees. These companies have to publish information related to (i) environmental matters, (ii) social matters and treatment of employees, (iii) respect for human rights, (iv) anti-corruption and bribery, and (v) diversity on company boards (in terms of age, gender, and educational and professional background). The

NFRD has been largely non-prescriptive, giving companies significant leeway on what, how, and where to report.

In April 2021, the European Commission¹¹⁾ adopted a proposal for a Corporate Sustainability Reporting Directive (CSRD), which would amend the NFRD. The proposal extends the reporting requirements to all large companies and all companies listed on regulated markets, with an exemption for small firms. The CSRD requires an audit (or assurance) of reported sustainability information and introduces more detailed reporting requirements than the NFRD. In addition, companies will be required to digitally tag the information they report, so that it is machine readable and feeds into a single European data repository. As planned, companies will be required to follow mandatory EU sustainability reporting standards. These standards, currently

11) https://ec.europa.eu/info/business-economy-euro/company-reporting-and-auditing/company-reporting/corporate-sustainability-reporting_en



being drafted by a task force of the European Financial Reporting Advisory Group, follow the principle of double materiality. The first draft of these standards is expected in October 2022.

4.2.2. France

In the run-up to the Paris Agreement, France enacted its Energy Transition for Green Growth Act. Article 173 of this legislation mandates that French institutional investors report on the sustainability aspects of their investments. The law is not prescriptive, but rather follows a comply-and-explain approach. Specifically, investors are required to report on how they integrate ESG criteria into their investment policies, with specific attention paid to climate-related aspects. The regulation also requires investors to disclose information on how they contribute to France's low-carbon energy transition and other environmental objectives.

4.2.3. United States

Recently, the United States has also shown an increased regulatory interest in sustainable finance metrics. In July 2021 the Securities and Exchange Commission (SEC) chair, Gary Gensler, announced that he had instructed SEC staff to develop a mandatory climate risk disclosure proposal for the SEC's consideration. Since it does not have a political mandate, the SEC cannot simply impose mandatory disclosure; any proposal would need political support, making it uncertain whether there will be any form of mandatory and, above all, prescriptive climate disclosure in the US. Many US firms, for instance, have expressed the need to maintain flexible reporting. Also, in contrast to the double materiality approach of the EU's regulatory efforts, the US has focused on financially material sustainability issues alone. Overall, most of the US regulatory focus seems to be concentrated on climate risk and not on broader environmental and social issues.

4.2.4. United Kingdom

The United Kingdom has taken an innovative approach to sustainable finance metrics. As early as 2013, the country introduced mandatory and

prescriptive greenhouse gas emissions disclosures for UK incorporated firms, i.e., large UK firms listed on the Main Market of the London Stock Exchange. The country recently extended these disclosure requirements to all UK firms, both public and private. In addition, in 2020 the UK announced it would make climate risk reporting according to the TCFD framework mandatory in the coming years. In 2021, the UK Financial Conduct Authority has now proposed to begin extending its TCFD reporting standards economy wide and also recently wrote a letter to the CEOs of fund management companies on expectations for the design, delivery, and disclosure of information on ESG funds.¹²⁾

4.2.5. Switzerland¹³⁾

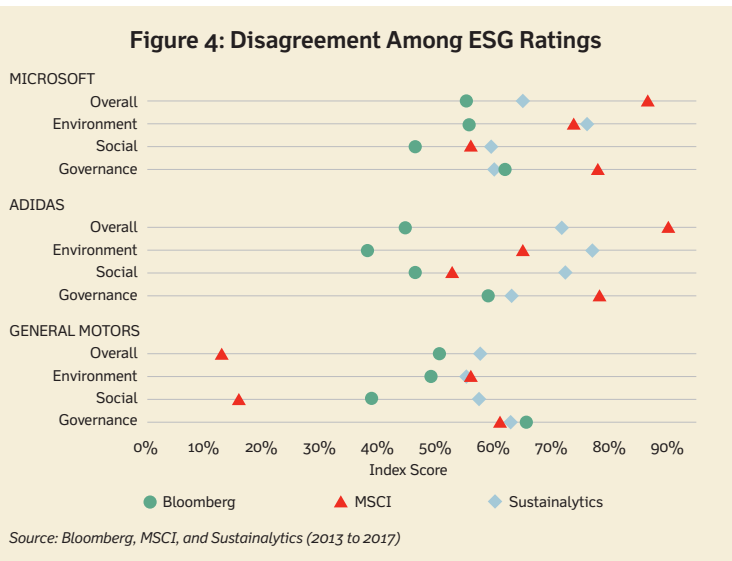
The Swiss Financial Market Supervisory Authority (FINMA) recently announced that large Swiss banks and insurance companies (supervisory categories 1 and 2) will be subject to climate risk disclosure obligations starting in 2021. These financial firms will need to disclose information on the consequences of climate change that could pose significant financial risks to their institutions in the long term. FINMA is requiring the firms to provide both qualitative and quantitative information. The disclosure requirements are principles-based, providing substantial flexibility in implementing them. However, FINMA has based its disclosure rules on the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD), thereby following an international framework. In August 2021, the Federal Council announced it would extend these mandatory reporting requirements to large listed companies which have 500+ employees and more than CHF 20 million in assets or CHF 40 million in turnover. These new rules are expected to come into effect in 2024 (covering fiscal year 2023).

¹²⁾ <https://www.fca.org.uk/firms/climate-change-sustainable-finance>

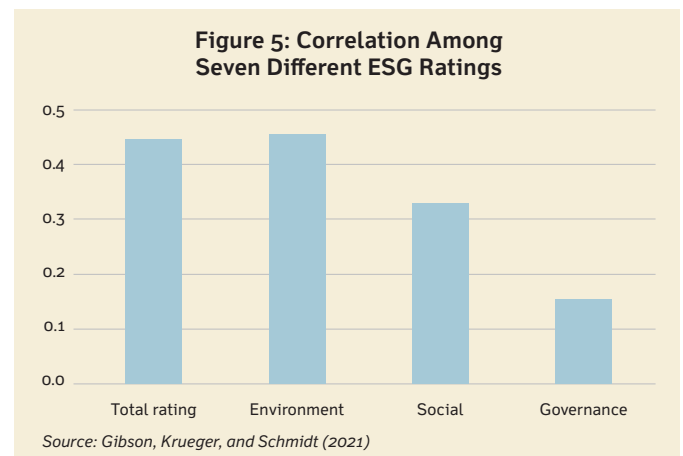
¹³⁾ <https://www.finma.ch/en/news/2021/05/20210531-mm-transparenzpflichten-zu-klimarisiken/>

5. Sustainable Finance Metrics Tend to Diverge and Disagree

One common criticism of firm-level sustainable finance metrics is that the scores or ratings produced by different data providers may reach different conclusions regarding the sustainability of a given firm (or investor). To illustrate this point, a widely recognized Wall Street Journal article¹⁴⁾ noted that in 2018 Tesla was rated highly by MSCI regarding environmental issues, while FTSE came to the opposite conclusion, rating Tesla poorly on those same matters. Figure 4 illustrates the disagreement of ESG scores issued by three different sustainability rating providers for Microsoft, Adidas, and General Motors using data from 2013 to 2017.



In a recent paper published in the *Financial Analysts Journal*,¹⁵⁾ my co-authors and I provide more systematic evidence on such ESG rating disagreement: using seven ESG ratings from prominent data providers for a sample of S&P 500 firms between 2010 and 2017, we provide evidence on the magnitude of the average cross-correlations of ESG ratings issued by different providers.

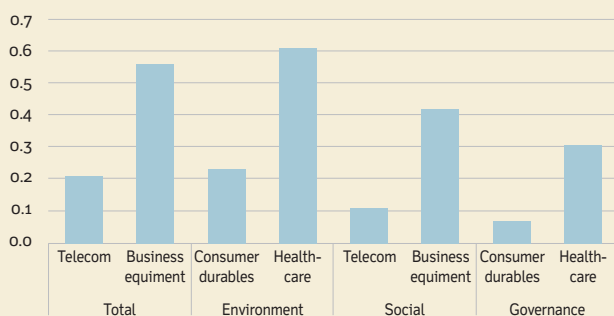


As Figure 5 shows, the average cross-correlation is about 0.45 for the overall ESG rating. To put this figure into perspective, the correlation between credit ratings is typically much higher, sometimes exceeding 0.99. For the ESG ratings, the average correlations are highest for the environmental rating (0.46) and lowest for the governance rating (0.16). The latter finding is interesting, given the widely held belief that a strong and common understanding exists on how to measure and quantify corporate governance.

14) Mackintosh, J. (2018). Is Tesla or Exxon more sustainable? It depends whom you ask. *Wall Street Journal*.

15) Gibson, R., Krueger, P., & Schmidt, P. S. (2021). ESG rating disagreement and stock returns. *Financial Analysts Journal*, forthcoming.

Figure 6: Sectors With Lowest and Highest Average Correlations by ESG Ratings



Source: Gibson, Krueger, and Schmidt (2021)

Interestingly, as Figure 6 shows, there are also important differences across industries. For instance, ESG ratings tend to disagree more (i.e., there are lower average correlations) in the Telecom than in Business Equipment sector.

Figure 7: Cross-Correlations Among ESG Ratings

Total Rating	Refinitiv	Sustainalytics	Inrate	Bloomberg	FTSE	KLD
Sustainalytics	0.75					
Inrate	0.23	0.30				
Bloomberg	0.75	0.69	0.12			
FTSE	0.57	0.61	0.27	0.59		
KLD	0.52	0.56	0.29	0.48	0.49	
MSCI IVA	0.40	0.43	0.32	0.30	0.27	0.44

Source: Gibson, Krueger, and Schmidt (2021)

Another interesting finding of our study is that, while the average cross-correlation of ESG ratings is relatively low (i.e., about 0.45), the ESG ratings issued by some providers are arguably more correlated. As Figure 7 shows, the correlation between the Total ESG rating issued by Bloomberg, Refinitiv, and Sustainalytics is about 0.70. Hence

the commonly held belief of generalized disagreement across all ESG ratings is probably unfounded.

While some ESG ratings do agree more than others, on average there is still considerable disagreement. Such disagreement is not confined to firm-level ESG ratings alone: similar patterns of disagreement also exist for other sustainable finance metrics. For instance, a team of researchers from the University of Hamburg¹⁶⁾ recently examined the extent to which firm-level carbon emissions data, as sold by different data providers, lead to similar conclusions about a firm. They found that the correlation between the estimates of firm-level Scope 3 emissions—which, according to the GHG protocol¹⁷⁾ measure all indirect emissions that occur in the value chain of a firm, including both upstream and downstream emissions—vary strongly by data provider. This research provides evidence that the average correlation for Scope 3 emissions data provided by different data providers is about 0.58, suggesting substantial inconsistencies across providers. The analysis also reveals that data on direct GHG emissions are more consistent across providers, perhaps because these data are not estimated, but are most often provided by the firms directly.¹⁸⁾

A third category of sustainable finance metrics in which such disagreement has been documented is the area of physical climate risk exposure scores. Using six measures of a firm's physical climate risk exposure,¹⁹⁾ a team of researchers at the University of Zurich recently found that these measures also come to different conclusions regarding the same firm's climate risk exposure.

16) Busch, T., Johnson, M., & Pioch, T. (2020). Corporate carbon performance data: Quo vadis?. *Journal of Industrial Ecology*, 1-14.
 17) <https://www.ghgprotocol.org/sites/default/files/ghgp/public/FAQ.pdf>
 18) Scope 1 emissions are direct emissions from owned or controlled sources. Scope 2 emissions are indirect emissions resulting from purchased energy.
 19) Hain, L. I., Kölbl, J. F., & Leippold, M. (2021). Let's get physical: Comparing metrics of physical climate risk. *Working paper*.

6. What Explains ESG Rating Disagreement?

While it is certainly important to know that disagreement in ESG ratings exists, it is probably more important to understand why it arises. First, it should be noted that disagreement in financial markets, per se, is not unique to sustainable finance metrics. While credit ratings show a high level of convergence, forecasts of EPS, price targets, and buy/sell recommendations issued by financial analysts, as well as broker reports, are typically much more heterogeneous than credit ratings.

Nonetheless, researchers have begun to find explanations for why sustainable finance metrics tend to disagree. Early research²⁰⁾ focused on a firm's corporate social responsibility (CSR) ratings. The main reasons for disagreement here, the researchers found, was the lack of a shared view of what it means for a firm to be socially responsible (i.e., a lack of common theorization) and the lack of agreement on which metrics should be used to measure CSR (i.e., a lack of commensurability). The lack of common theorization is likely the result of societal and normative aspects being at play when defining CSR.

More recently, Berg, Kölbel, and Rigobon (2020)²¹⁾ examine reasons for ESG ratings disagreement using data from six prominent data providers. They identify three reasons for divergence: First, they relate divergence to the fact that different data providers use different categories when constructing their ESG ratings (i.e., scope divergence). Second, they point out that different data providers measure the same category using a variety of different measures (i.e., measurement divergence). Third, the authors examine the idea that different data providers attach different weights to different issues in their aggregation processes (i.e., weight divergence).

Of the three, they find that measurement and scope divergence are the most important factors in explaining ESG ratings disagreement. Measurement divergence is the strongest contributor and is particularly prominent when attempting to measure a firm's ESG performance with respect to human rights and product safety issues. Weight divergence plays a lesser role, although, one could argue, that weight divergence could be seen as a special form of scope divergence. The researchers also show that a rater effect exists: when a rating company attaches a good rating to a firm in one dimension, it tends to attach higher ratings in the other dimensions too, suggesting that rater-specific bias is not random.

Other research examining why ESG disagreement exists has focused on disclosure as a source of divergence. In contrast to financial disclosure, which is subject to many mandatory and prescriptive rules and regulations, ESG data disclosure is still voluntary and non-prescriptive in most jurisdictions. While there is now an increasing effort to harmonize and mandate ESG disclosures, as noted above, until recently few prescriptive regulations existed on how firms should disclose on ESG matters. Research from the Harvard Business School,²²⁾ for example, found that firms disclose on the same ESG topic using vastly different measures. When the researchers looked at how fifty randomly selected Fortune 500 firms disclose on the topic of Health and Safety, they found that these fifty firms used more than twenty different metrics. Besides the issue of vastly divergent data disclosure, the same publication also singles out data discrepancies, choice of peer groups in best-in-class calculations, data imputation, and information overload as important reasons for the existence of divergent ESG ratings.

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

21) Berg, F., Kölbel, J. F., & Rigobon, R. (2020). Aggregate confusion: The divergence of ESG ratings. *Working paper*.

22) Kotsantonis, S., & Serafeim, G. (2019). Four things no one will tell you about ESG data. *Journal of Applied Corporate Finance*, 31(2), 50-58.

One might think that increasing the quantity of disclosure would reduce ESG rating disagreement. Further recent research from the Harvard Business School,²³⁾ however, comes to the opposite conclusion: more available information results in more diverse interpretations and thus more disagreement. The researchers provide empirical evidence that disagreement increases with the *quantity* of sustainability disclosure, highlighting that simply

requiring more information from firms might not solve the problem but, in fact, worsen the situation. Whether increases in the *quality* of sustainability disclosures would result in less disagreement remains an open question.

23) Christensen, D. M., Serafeim, G., & Sikochi, S. (2021). Why is corporate virtue in the eye of the beholder? The case of ESG ratings. *The Accounting Review*, forthcoming.



7. What Can Be Done to Improve the Current Situation?

Currently, some of the commonly mentioned shortcomings of sustainable finance metrics are missing data, a lack of agreement on relevant qualitative information and quantitative Key Performance Indicators (KPIs), and the divergence of sustainable finance metrics. What can be done to address these issues?

7.1. Data availability

In terms of filling data gaps with consistent information, it is questionable if further reliance on voluntary actions by firms and investors will deliver a desirable outcome. A recent survey²⁴⁾ of more than 800 finance academics and professionals, public sector regulators, and policy economists revealed that not a single respondent was optimistic that voluntary behavior by corporations would be a significant force in reducing climate risk exposure and firm-level carbon footprints. While this survey focused on climate finance more generally, not on the disclosure of sustainability information specifically, the unequivocal dismissal of voluntary actions does raise doubts about whether the continuation of voluntary, non-prescriptive, and flexible disclosure mandates will improve the quality and availability of sustainable finance metrics. Similarly, research²⁵⁾ relying on machine learning techniques finds that firms' support of TCFD is mostly "cheap talk" and that firms "cherry-pick" disclosures by selecting primarily non-material climate risk information. These authors conclude that the only way out of this dilemma is to move from voluntary to mandatory reporting. While voluntary disclosure allows firms and investors to provide signals to outsiders about their sustainability efforts, mandatory disclosure will reduce uncertainty with respect to the unobservable quality of firms' and investors' sustainability characteristics and climate-related policies.

It is important to note that the currently envisioned mandatory reporting rules are different from most of those in existence today. Mandatory disclosure

rules should include formal standards that are prescriptive about the topics that firms and investors need to report on, the metrics they should use, and how these metrics should be computed, as well as where the information needs to be disclosed. While some forms of mandatory sustainability reporting already exist, they are rarely prescriptive in nature, although there are exceptions. For instance, the SFDR regulation is much more prescriptive, in that it identifies key KPIs as well as key qualitative information that must be disclosed. Perhaps a phased approach that builds on international standards that already exist (or are in the process of being developed) might be advisable.

7.2. Costs and benefits of disclosure mandates²⁶⁾

7.2.1. Costs

Introducing sustainability disclosure mandates is obviously subject to costs, as well as benefits, and both need to be evaluated carefully. The costs of such mandates are both direct and indirect. The direct costs are related mainly to the preparation, certification, and dissemination of the information. Given that many firms and investors already provide some form of certified sustainability information, it is unlikely that the direct costs of new mandates will greatly affect those firms. Firms and investors that do not yet provide any sustainability information, however, will need to set up new reporting systems, which could result in new direct costs. As these costs have a high fixed component, special attention needs to be paid to smaller firms and investors, for which fixed preparation and certification costs are relatively higher.

24) Stroebel, J., & Wurgler, J. (2021). What do you think about climate finance?. *Journal of Financial Economics*, forthcoming.

25) Bingler, J. A., Kraus, M., & Leippold, M. (2021). Cheap Talk and Cherry-Picking: What ClimateBert has to say on Corporate Climate Risk Disclosures. *Working paper*.

26) Many of the ideas in this section are inspired by a recent survey paper that examines what academic insights tell us about the economic costs and benefits of sustainability disclosure mandates. See: Christensen, H. B., Hail, L., & Leuz, C. (2021). Mandatory CSR and sustainability reporting: economic analysis and literature review. *Review of Accounting Studies*, 1-73.

The indirect costs resulting from disclosure mandates come mainly in the form of proprietary costs, since other stakeholders (competitors, suppliers, regulators, or society as a whole) can use the information provided by the firms and investors. Accounting research has found such proprietary costs to be generally low for high level or aggregated disclosures, but these costs can be substantial for detailed or specific disclosures, especially for smaller firms and investors. Moreover, if their disclosures are forward-looking, the firms and investors will be subject to a higher litigation risk. However, since the mandates would also force the timely disclosure of bad news or information, they could reduce the likelihood and costs of litigation.

7.2.2. Benefits

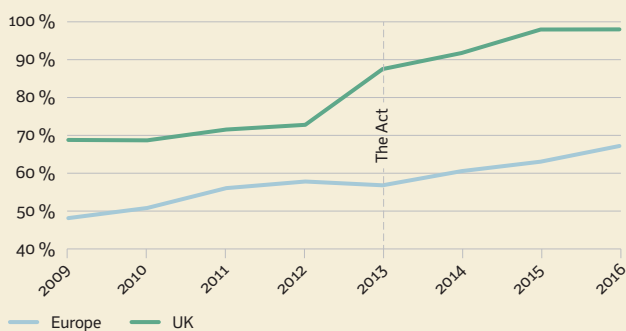
Prior research also highlights several benefits of more and better disclosure by firms and investors. For instance, disclosure reduces information asymmetries and raises firm and investor awareness of specific issues. Better disclosure also improves and facilitates the monitoring of corporate insiders by external parties, such as the media, analysts, or institutional investors. Hence, better disclosure could potentially improve corporate and investor decision-making. In addition, disclosure by one firm can generate positive externalities, via information transfers and spillovers. Even though the magnitude of these market-wide externalities is difficult to quantify, positive externalities could constitute an important reason for mandating sustainability disclosure and, in particular, climate-related disclosure and reporting.

Other benefits of having mandatory disclosure regulations with binding accounting standards include the transparency and comparability arising from standardization. While these benefits surely exist, they are not sufficient to justify a mandate: if disclosure carried net private benefits, firms and investors would have sufficient incentives to reveal

the information voluntarily. However, in the case of sustainability disclosure (and, in particular, climate-related disclosure), there are clearly positive externalities that individual firms and investors do not consider when deciding what to disclose. Most often, these positive externalities from disclosure occur when the public value of the information differs from its individual or private value. For climate-related disclosures, it seems likely that the public benefits exceed the private benefits of disclosure, and that, currently, firms in the aggregate do not consider these positive externalities when choosing what to report. These public benefits provide a strong motivation for creating reporting standards and for mandating their use. In addition, mandating and standardizing reporting can reduce aggregate costs by reducing duplication in the production and acquisition of information. For instance, firms currently interact with various sustainability data providers, each of which is likely to request different kinds of information. Regulators and investors might request yet other kinds of information from firms. Standardized disclosures that are relevant to all firms and to many users (investors, regulators, and data providers) are likely to generate market-wide cost savings. Overall, standardization facilitates the comparison of different firms and investors. Finally, disclosure regulation can also serve to make firms internalize negative externalities and to reduce the activities that produce them, ultimately driving corporate change.

To see the potential benefits of a mandatory and prescriptive sustainability disclosure regulation, consider the UK's introduction of greenhouse gas (GHG) emissions disclosure in 2013. The effects of this regulation were twofold.

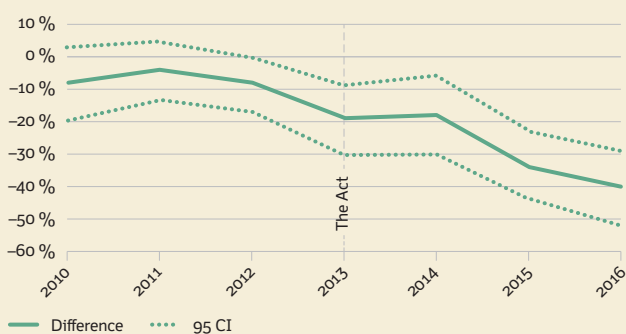
Figure 8: GHG Emissions Disclosure Percentage Rates for UK and European Firms



Source: Jouvnot and Krueger (2021)

As Figure 8 shows, following the introduction of the regulation the availability of GHG emissions data improved more in the UK than in the rest of Europe: in the first year of the regulation, the disclosure rate by UK firms increased from 70 to 90 percent.

Figure 9: Average Percentage Differences in GHG Emissions for UK and European Firms



Source: Jouvnot and Krueger (2021)

Figure 9 shows what happened to firm-level GHG emissions following the regulation. On average, UK firms reduced their GHG emissions more than did comparable firms from the European countries. In other words, the disclosure regulation itself caused a reduction in emissions. Overall, the regulation had a beneficial effect not only on the

information environment (by increasing the availability of GHG emissions data), but also positively impacted corporate behavior, as evidenced by stronger de-carbonization of UK firms relative to European firms.

7.3. What can be done about diverging ESG scores and ratings?

One important insight of the research by Berg, Koelbel, and Rigobon (2020) is that divergence is not only driven by differences in opinion (i.e., scope divergence), but also by differences in the underlying data (i.e., measurement divergence). Different raters seem to measure similar sustainability issues using different measures and approaches; this measurement divergence plays the biggest role in driving the overall ESG rating divergence. While it is certainly good to have differences of opinion and to not prescribe which aspects (or scopes) of sustainability are the most important—in particular since users might have different preferences with respect to sustainability data and ratings—measurement disagreement is clearly problematic. Similar categories should be measured in the same way. However, as long as there are no uniform standards for ESG disclosure, and quantification approaches remain non-transparent, measurement divergence is likely to remain an important driver of ESG rating divergence. In choosing uniform sustainability measurements, thought should be given to selecting a set of narrowly and clearly defined attributes for which verifiable, auditable, and transparent measures exist (e.g., GHG emissions, de-carbonization targets, etc.). Ideally, scenario analyses or temperature alignment metrics²⁷⁾ would also be disclosed, but it is doubtful whether currently existing methodologies allow for a meaningful disclosure and perhaps a less prescriptive approach for this is more advisable until a common framework is found. In addition, efforts should be

27) See, for instance, <https://am.lombardodier.com/contents/news/white-papers/2021/july/designing-temperature-alignment.html>

made to foster the harmonization of, and collaboration among, the many different existing standards (TCFD, SASB, GRI, EFRAG, IFRS, etc.). Developing new standards and not building on existing frameworks risks amplifying the problem commonly known as "ESG alphabet soup." The research by Berg, Kölbl, and Rigobon (2020) shows, for instance, that if ESG rating agencies organized their ratings according to a standardized taxonomy, their methodologies and ratings would become more aligned. Even though differences of

opinion are useful, the research shows that some prescriptive guidance as to which categories are more important might also reduce divergence. For example, Berg, Kölbl, and Rigobon (2020) use the SASB taxonomy to create new ratings in which weights and scope are made consistent across providers; this exercise leads to higher agreement among the ESG ratings. Finally, increasing the methodological transparency of data providers about such issues as peer groups or scopes and weights might also reduce inconsistencies.



8. Policy Recommendations and Conclusion

Measuring sustainability, and constructing reliable sustainable finance metrics, will remain challenging. The divergence of the current sustainable finance metrics is driven, to a large extent, by differences in measurements and differences in definitions. While the definitions of sustainability are likely to continue to diverge in the future, given that sustainability is at least to some extent a normative and subjective concept, the measurement differences could potentially be addressed. For instance, regulators could prescribe how firms and investors provide information on specific sustainability topics by defining a set of generally accepted disclosures and metrics. Regulators should require firms and investors to report on these issues in official disclosure documents (e.g., annual reports, regulatory filings, etc.) and focus on dimensions that are generally deemed important, well defined, and measurable (e.g., GHG emission and de-carbonization targets, etc.). In their efforts, regulators should build on what already exists, that is favoring existing disclosures and endorsing available approaches and frameworks.

The many voluntary approaches that currently coexist not only add to the overall confusion, they also impose a reporting burden on firms and investors. If firms and investors are required to respond to many different standards, duplication of information occurs, resulting in deadweight losses and avoidable costs. Regulatory action aimed at harmonization and standardization could be beneficial and perhaps even required in this respect. Overall, regulatory action should evaluate the costs and benefits of mandatory disclosure regulation. Regulatory action should also build on existing standards and work to harmonize these standards across geographic regions to ultimately obtain one global sustainability disclosure standard. Reasonable arguments in support of a sustainability reporting mandate include possible cost savings and standardization benefits for the users of sustainability information, more commitment to disclosure, and the potential to reduce the negative externalities arising from firms' and investors' activities. However, the costs associated with the enforcement and design of such a mandate should also be considered. Finally, there needs to be increased transparency regarding the methodologies used to construct ESG ratings and scores. More transparency will allow users to better understand why these ratings and scores diverge. More transparency will also help the users of these data identify the most suitable measures and use them accordingly.

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