MEKETA

Greenhouse Gas Emissions: An Overview of Consistency Among Data Providers

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Overview

In 2024, Meketa's research team provided thought leadership on a variety of topics related to risk. These topics have included topics such as concentration risk with our research "The Magnificent Seven", country specific risk "Emerging Market Equities without China" or regulatory risk "Treasury Market Regulatory Reforms". In our most recent research on Greenhouse Gas Emissions: Consistency Among Data providers, we look at risks related to data inputs and sustainability factors, which some investors include in Environmental, Social, and Governance considerations.

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Introduction

As Greenhouse Gas ("GHG") emissions have come into focus for some Chief Investment Officers, trustees, and other stewards of capital, questions have emerged about the available emissions data. Who are the emissions data provider(s)? What are the important differences between data providers? Why are companies struggling to report data? What are our investment risks as it relates to changing climate conditions? Changes to the regulatory requirements surrounding emissions data continue to heighten the importance of these questions and highlight the evolving landscape of industry best practices and legal requirements.[1]

[1] Voluntary and regulatory disclosure requirements continue to evolve. Multiple jurisdictions are beginning to require corporate emissions disclosure (ESG Book, April 2024: ESG Policy Digest. In the US, a recent Securities and Exchange rule requires large and mid-size publicly listed companies to report Scope 1 and 2 emissions if material, and California's 2024 rule requires large publicly held and privately held companies doing business in California to disclose Scope 1, 2 and 3 emissions. Both the SEC and California rules face litigation.

To help answer these questions, Meketa conducted a survey of seven greenhouse gas emissions data providers. We asked each provider for their 2021 climate metrics on the securities in the S&P 500 Index and the MSCI All Country World Index ("MSCI ACWI"). Our survey found that each data provider may have distinct emission estimates for under and unreported company emissions, while they have substantially similar company-reported emissions data. The variation among data providers on GHG emissions for two widely-used benchmarks indicates that total emissions of portfolios may be different due in part to data provider GHG emissions estimates rather than just security holdings. Depending on the data provider, the estimated emissions could vary.

Key takeaways

- **There is at least a one-year lag in reported emissions data.**
- **GHG Emissions Data Variability:** The report finds that data providers may have distinct emission results particularly when emissions are estimated by the data provider for a significant number of companies. Data providers had highly similar results when company-reported emissions data were available.
- **Scope Definitions:** Scope 1 and 2 emissions are directly connected to company productivity and operating energy consumption, reflecting direct emissions (Scope 1) and indirect emissions from purchased power (Scope 2), respectively. Scope 3 includes all other indirect emissions, such as those for their products after purchase and the emissions of their suppliers.
- **Scale of Emissions:** Data providers estimate that Scope 1 and 2 emissions combined represent less than twenty percent of total emissions and that Scope 3 constitute the largest portion of emissions.
- **Reporting Challenges:** Companies face challenges in reporting GHG emissions, especially Scope 3, due to its complexity and the lack of consistent and accurate estimation methodologies.
- **Correlations between providers** were higher for Scopes 1 and 2 where company-reported data is greater than for Scope 3 emissions.
- **S&P 500 vs. MSCI ACWI:** Data providers must estimate emissions for a significantly higher percentage of MSCI ACWI constituent companies than for the S&P 500 because, unlike the S&P 500 Index, the MSCI ACWI includes not just US large cap companies, but large and mid-cap companies globally. Fewer mid-cap companies report emissions and corporate emissions reporting is lower in some countries compared to the US.
- **Correlations of revenues with Scope 3 emissions:** Scope 3 estimated emissions were more highly correlated with revenues than Scope 3 company-reported emissions for all data providers.

What are Scopes 1, 2, and 3 GHG emissions?

For most corporate GHG emissions reporting, the Greenhouse Gas Protocol Corporate Standard, first published in 2001, serves as a foundation to help companies and investors understand their impact as it relates to GHGs.[2] The Greenhouse Gas Protocol provides accounting and reporting standards for corporations. The Corporate Standard defines three scopes of emissions, as shown in Figure 1 below.

[2] Source: Greenhouse Gas Protocols as of February 2024.

	Scope 1	Scope 2	Scope 3
What they are	Direct GHG emissions from sources owned or controlled by a company.	Indirect GHG emissions generated by the electricity, steam, heating, and cooling purchased and consumed by a company.	A company's indirect emissions from upstream (purchased goods & services) and downstream (customer uses) entities.
How they are emitted	Company-owned and operated facilities, vehicles, machinery (four direct categories).	Purchased power (one indirect category).	Suppliers, Leased Assets & Transport, Investments, Customer Uses, & End of Life (15 indirect Categories).

FIGURE 1
Green House Gas Emissions Scope Defined

Source: Greenhouse Gas Protocols as of February 2024.

Company reported emissions

Calculating GHG emissions is not a trivial exercise. Companies must often make decisions on calculating their GHG emissions with limited reporting resources. For each scope, companies have options under the GHG Protocol on how to calculate their emissions. Scope 1 and Scope 2 emissions are part of a company's operating emissions. Scope 3 is much more challenging to quantify. Scope 3 encompasses indirect emissions from suppliers other than Scope 2 emissions from purchased power, and emissions from customer use of products and services after they are sold. For this report, we refer to data provider sources of emissions as: reported (reported by the company), estimated (estimated by the data provider) or uncollected (the data provider has no company reported or provider estimated emissions data for a company).

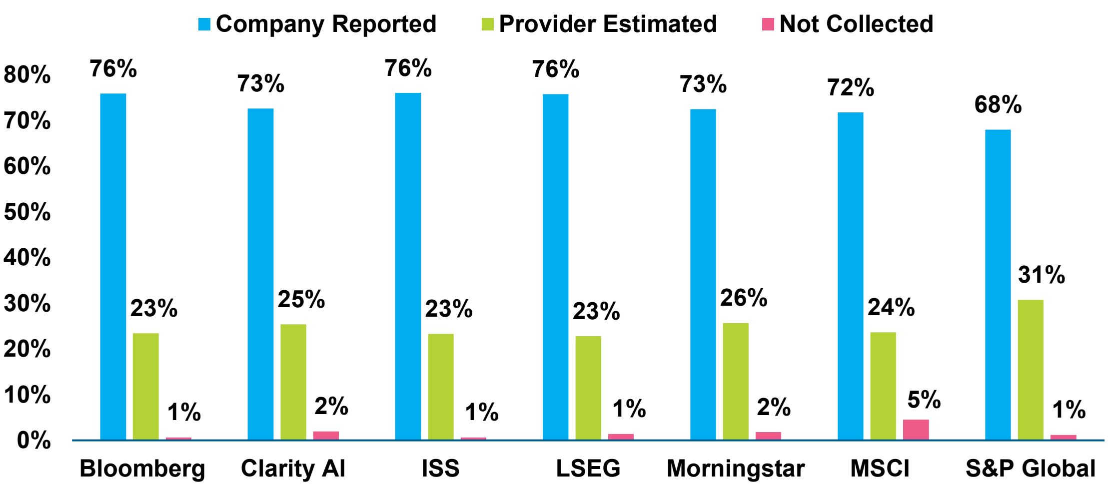

FIGURE 2
Data Provider Reported, Estimated and Uncollected Scope 1 + 2 Emissions for the MSCI ACWI Index

Source: Data provider data collected by Meketa as of December 2021. The data providers who chose to participate in our survey were: Bloomberg, Clarity AI, ISS, LSEG, Morningstar, MSCI, S&P Global.

Due to the complexity of estimating Scope 3 emissions, every data provider's results indicated that companies are less likely to report their Scope 3 emissions (see Figures 2 and 3). When a company is actively reducing its Scope 3 emissions, they may have an additional incentive to voluntarily report Scope 3 emissions. For example, a company may issue a green bond tied to reducing some element of its Scope 3 emissions. Green bond issues can link the bond issuance to reducing a company's total carbon footprint.[3]

[3] In 2023, Air Products, an S&P 500 company, issued the first green bond of any US chemicals company. Air Products' green finance framework includes reductions in Scope 3 emissions based on its product suite transition to include production of green and blue hydrogen.

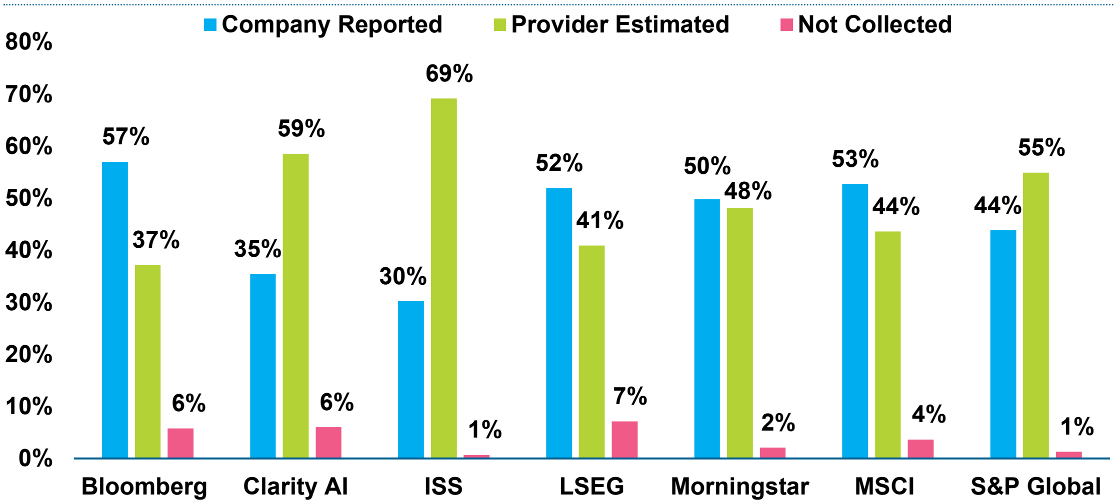

FIGURE 3
Data Provider Reported, Estimated and Uncollected Scope 3 Emissions for the MSCI ACWI Index

Source: Data provider data as of December 2021.

Differences between data provider sources of emissions data were smaller for Scopes 1 + 2 (see Figure 2), where there were higher levels of reported emissions, than for Scope 3 (see Figure 3) which had lower levels of company reported data. Emissions data may be inconsistent over time as companies that report emissions may update and improve their estimation methodology over time, and data providers may improve methods for estimating unreported and underreported corporate emissions.[4]

[4] Source: Bloomberg, 2022 Bloomberg's Greenhouse Gas Emissions Estimates Model.

While each data provider has a proprietary methodology for estimating emissions, we found that for Scope 3 emissions, data provider emission estimates were more highly correlated with company total revenues than were company reported Scope 3 emissions (see Figure 4).

	Company Reported		Data Provider Estimated	
	Correlation with Revenues	# of Securities	Correlation with Revenues	# of Securities
Bloomberg	31%	1,690	61%	1,103
Clarity AI	27%	1,051	38%	1,733
ISS	40%	895	53%	2,049
LSEG	30%	1,540	60%	1212
Morningstar	34%	1,476	69%	1,423
MSCI	25%	1,562	68%	1,285
S&P Global	35%	1,299	45%	1,626

FIGURE 4
Scope 3 Reported & Estimated Emissions Correlations with Revenues for MSCI ACWI Index

Sources: Bloomberg, Clarity AI, ISS, LSEG, Morningstar, MSCI, S&P Global.

Summary

Our survey of emissions data providers was designed to help institutional investors navigate the process of assessing their investment portfolios' total carbon emissions. We found strong consistency among these seven providers in the share of total emissions accounted for by Scope 1, 2 and 3 emissions, and in their results for Scopes 1+2 emissions for the S&P 500 index where most constituents report data. We found less consistency when data providers estimated data for a greater number of companies because fewer companies fully reported emissions. This was particularly evident for Scope 3 emissions for the MSCI ACWI. In addition, we identified a revenue bias across all providers in their estimates of Scope 3 emissions. Differences in emissions data as reported among the data providers may pose challenges for investors seeking reliable estimates of their GHG exposure. While there have been promising developments in this sector, industry best practices are still evolving, and some emissions disclosure regulations are subject to legal challenges.

We thank the firms that made this comparison possible: GHG data providers Bloomberg, Clarity AI, ISS, LSEG (consisting of the heritage Refinitiv franchise, FTSE Russell, and others), Morningstar (Morningstar Sustainalytics), MSCI, and S&P Global (S&P Global Trucost Environmental Dataset); FactSet for revenues; and index providers MSCI and SPDJI. No contributors necessarily agree or disagree with the comments or conclusions in this report. Meketa did not audit the data provided. This report does not recommend any metrics, methodology or data provider.

Interested in diving deeper into the results of our Green House Gas data provider survey results? Please click here.

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