

Comment on SEC’s Proposed Rule Rel. No. 33-11042 on “The Enhancement and Standardization of Climate-Related Disclosures for Investors”

by

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SUMMARY: In this document, I examine issues associated with measurement and disclosure of Scopes 1, 2 and 3 emissions by companies, and the implications thereof. My main conclusion is: While Scopes 1 and 2 emissions measurements are generally credible, are inexpensive to do, and can be externally validated with some degree of accuracy, the quality, provenance, methodologies and content – and hence validity and usefulness – of Scope 3 measurements leave a lot to be desired among even sophisticated companies, even in advanced economies such as in the US. Further, by double- (even triple-) counting firm-level emissions, the requirement to report Scope 3 – indeed, in principle, even Scope 2 – emissions not only raise conceptual minefields related to what firms should be held responsible to disclose, but also raises the risk of creating investor confusion while simultaneously inviting frivolous lawsuits.

NOTE ON SOURCE(S): Large portions of this document are based upon and adapted from **Section 5** of my chapter “Business and Climate Change” in the *Handbook of Business and Climate Change*, A. Sundaram and R. Hansen (eds.), Edward Elgar Publishing, 2022 (in press). The full chapter draft is available upon request.

Currently, public emissions disclosure in the US at the corporate or firm-wide level – including direct emissions from all of their facilities worldwide (Scope 1), indirect emissions from all of the sources of their electricity purchases globally (Scope 2), and indirect emissions from their entire value chain all the way from raw material extraction through to consumer use/disposal (Scope 3) – is voluntary.¹ Leaving aside potential biases from voluntary disclosure that therefore arise from self-selection – i.e., who reports and why – legitimate questions can be raised regarding which types of emissions are reported, using what types of estimation methodologies, and whether the disclosed data are subject to external verification (and in that event, who the verifiers are). Yet, we can make some broad generalizations about the quality of reported data.

Given the wide availability of regularly updated, easily accessible emissions conversion factors for major fossil fuel types (coal, oil, and natural gas), the measurement and reporting of

¹ Following a ruling by the US Supreme Court in 2007 that classified GHGs as “pollutants” thereby giving the US EPA the authority to regulate them, the EPA instituted a *US-located facility-level GHG reporting program* (“GHGRP”) in October 2009, for firms above a certain emissions quantity threshold. The EPA estimated that at its start in 2009, GHGRP covered approximately 8,000 emitting facilities in the US, accounting for 85%-90% of total US GHG emissions (EPA (2009)). SEC’s proposed rules would, however, require US firms to report on their activities worldwide.

Scope 1, i.e., direct – emissions from combusting fossil fuels is relatively straightforward and costless to do. It is relatively easy, even for a small firm, to obtain, maintain, and update data on its direct emissions – far easier than, say, measuring and managing data for payroll or billing.² All it requires is knowing how much of each type of fossil fuel the firm consumes, then using the available conversion factors. Methane (CH₄) and nitrous oxide (N₂O) are less of an issue for most businesses (except for landfills and wastewater treatment) since, over four-fifths of GHG emissions in the US corporate sector comprise CO₂.³

Scope 2 emissions – i.e., emissions associated with purchased energy – are equally straightforward to calculate and report. In most countries (more so in the advanced economies), there are governmental environmental agencies, such as the US Environmental Protection Agency (EPA), that maintain and update the average emissions content of every kWh of electricity produced and transmitted, broken down by grid regions. There are certainly issues that can arise – for example, fuel mix can differ depending on the time of day when electricity is produced, or emissions content of sub-regions may differ from the average for a larger region of which it is a part. However, aggregate emissions estimates are likely to be close enough to be useful, on average. Through the “eGRID” – or, Emissions & Generation Resource Integrated Database – initiative, the US EPA provides data on environmental characteristics of electric power generated in the US, including emissions for 27 sub-regional grids.⁴ As with Scope 1, calculating a firm’s Scope 2 emissions does not require much more than knowing the number of kilowatt-hours of electricity the firm consumes from each of the grids supplying power to its respective facilities, and then using emissions conversion factors associated with the grids from which the firm gets its electricity.

Accurate disclosure of Scope 3 emissions – i.e., emissions in the upstream (e.g., supplier) and downstream (e.g., customer) parts of the firm’s value chain reflecting the life cycle of the product or service – remains a major challenge. First, despite efforts by standard-setters such as the Greenhouse

² For the US, see the emissions conversion factors here: <https://www.epa.gov/sites/default/files/2020-04/documents/ghg-emission-factors-hub.pdf>; for global conversion factors, the IPCC maintains an “emissions factor database”: see <https://www.ipcc-nggip.iges.or.jp/EFDB/main.php>

³ See the analysis based on EPA’s greenhouse gas inventory data in **Section 3** in Sundaram (2022)

⁴ eGRID (US) data can be found here: <https://www.epa.gov/egrid>. Emissions factors for specific types of fossil fuels can be found here: <https://www.epa.gov/climateleadership/ghg-emission-factors-hub>.

Gas Protocol, there is, as yet, no clearly agreed-upon categorizations that firms use to classify components of their value chain for emissions reporting purposes, even within the same industry. As a result, it is not only difficult to undertake comparisons of quantities of Scope 3 emitted among peers, but it is nearly impossible to make comparisons of firm strategies in tackling their upstream and downstream emissions. And even when some reasonable peer comparisons are possible, tracking changes over time for the same firm is extremely difficult. The reasons for this are numerous. First, there is inconsistent reporting of Scopes 1, 2, and 3. The largest number of those who report disclose their Scope 1 emissions; fewer report Scope 2; even fewer, their Scope 3. Thus, even when comparisons across firms for their Scope 1 emissions are possible, indirect emissions, especially Scope 3, are not uniformly available. The required disclosure rule, if adopted, will change that, for sure, but it won't be easy or won't happen without a legal battle. Second, Scope 3 categories that are measured and reported across firms are not uniform. Some report their supply chain emissions *and* their customer use emissions, but others report only one or the other. Third, many of the methodologies and the data used for Scope 3 measurement protocols and conversion factors are stale, or opaque. Finally, companies sometimes go back and make changes when newer data or methodologies become available, but the explanations are either lacking or incomplete; moreover, no guidance is provided on how the user of the data can make time-series comparisons.

Box 3 below provides some insights on the concerns above by looking at the state of Scope 3 emissions reporting by some of the most sophisticated, largest, industry-leading companies in the world: US technology companies.

Box 3: Problems with Scope 3 Emissions Reporting by Leading Technology Companies

Consider the case of seven well-known technology companies that compete against each other across a wide range of products and services: Apple, Microsoft, Facebook, Amazon, Alphabet, Dell and HP. Using a commonly-used framework of categories of classifying Scope 3 emissions, namely manufacturing,⁵ product transportation, product use, end-of-life, and 'other' Scope 3 emissions, three out of the seven – Apple, HP, and Microsoft – provide reasonable detail under each. Dell does not separate out information on transportation or end-of-life, while Amazon and Alphabet do not separate out information on product use or end-of-life. Facebook's reporting is the opaquest, with no information provided on manufacturing, product transportation, product use or end-of-life; rather, the company reports just one number under a category called "other" (Bolduc and Sundaram (2020), Exhibit 5, p. 17).

Given such inconsistencies, it is pointless to attempt peer comparisons on Scope 3 emissions across these companies. It is a problem that many companies recognize, but given the lack of clear

⁵ This is also sometimes categorized as "purchased goods and services, and capital goods."

standards and the mostly voluntary nature of the disclosure, most companies make-do. Some just refuse to report. For example, energy company EOG Resources Inc. noted in its 2019 sustainability report that it “... does not believe that it is able to calculate Scope 3 emissions with the accuracy and rigor typically required...” for data it makes public (Eaglesham and Shifflett (2021)), and hence chooses not to.

Second, even when data are made available, firms frequently resort to Scope 3 estimation methodologies and conversion factors that are stale, or whose provenance is ill-explained. Numbers rounded off to the nearest one hundred-thousand are common.⁶ Third, even when better data or more robust conversion factors subsequently become available, it is not obvious whether companies (or data providers) go back and change numbers for prior years, and if they do, how they do so. Without such adjustments and explanations, data will not be easily comparable across time. Credible time series analysis becomes difficult, if not impossible.

The cases of Apple and Microsoft – two companies that publicly report a great deal of climate data, have set aggressive total (i.e., Scopes 1+2+3) carbon-neutrality goals – are illustrative. In its 2020 environmental report (data for 2019 emissions), Apple notes its reported 25 MtCO₂e would have been 23 MtCO₂e instead, i.e., 7% lower, had it used the same methodology in 2019 as it did in 2018 (Apple (2020), p. 13).

Similarly, in its 2018 environmental report (data for 2017 emissions), Microsoft (2018) reported 14 MtCO₂e of purchased goods & services and manufacturing Scope 3 emissions. However, its 2021 report (Microsoft (2021), p. 73) revises that 2017 number downwards to 5.76 MtCO₂e, i.e., a reduction of nearly 60%. The change in methodology that led to this drastically lower number is not explained. Moreover, in estimating its revised 2017 Scope 3 emissions in 2020, the company notes that its estimates (in 2020) are based on “cradle-to-gate” emissions factors by sector from UK Defra’s “UK Defra Table 13 – Indirect Emissions from the Supply Chain, March 2014” (without explaining the terms “cradle-to-gate” or “UK’s Defra”): In other words, data reported by the company in 2021, as a part of its 2020 emissions calculations, the data for which happened to get revised for the year 2017, were using 2014 conversion factors (Microsoft (2021), p. 82; see also Eaglesham (2021)).

---End of Box 3---

In summary, while Scopes 1 and 2 emissions reporting are generally credible and can be externally validated with some degree of accuracy, the quality, provenance, methodologies and content of Scope 3 reporting leave a lot to be desired among even sophisticated companies, even in advanced economies such as in the US.

If every company were to report its Scope 1 emissions – a requirement that would *not* be particularly burdensome even for small businesses, as noted above – by geographic location

⁶ Such rounding is somewhat peculiar in a context in which Scopes 1 and 2 emissions are typically reported with single-digit levels of precision. For example, Microsoft reports 2019 Scope 1 emissions of “113,412” tCO₂e and Scope 2 emissions of “275,375” tCO₂e, but reports “6.3 million” tCO₂e in manufacturing Scope 3 emissions, a substantially larger number by many multiples, compared to the sum of its Scopes 1 and 2 emissions (Bolduc and Sundaram (2020), pp. 16-17).

depending on where its operations are located, that would take us a considerable way towards building a comprehensive picture of aggregate corporate emissions since, after all, total emissions of the corporate sector in a country/region are just the sum of all corporate Scope 1 emissions in that country/region. Aggregated across all countries/regions, this provides most precise estimate of emissions that a company is actually responsible for.

Issues Associated with Double-counting

A general principle associated with required disclosure of any operational or financial metric is that firms report only on what they are directly responsible for, or have control over. For example, when firms report earnings, they only disclose based on measuring *their own* revenues and costs, *not* that of their suppliers, wholesalers/retailers, and users over whose actions or operations they have no direct control. A similar principle applies to just about every item that firms are mandated to disclose in their 10-Ks, e.g., material risks, reports by segments, cost of goods sold and SG&A, employee option expenses, and so forth.

Similarly, when any measure of output is reported, it relies on the principle of non-double-counting. For example, when a country's GDP is measured, the measurement process aggregates only the *value added* by each stage of production in the economy. (This is why, for example, we have macroeconomic input-output tables.) When a firm reports the quantities of its products sold, it only reports its own, and no one else's.

To require any reporting entity to do anything else is, simply put, *absurd*: It makes the entity responsible for not only obtaining *someone else's* data for every reporting period (in the case of US firms, every quarter), but also inevitably – with a view to forestall liability – starting to verify whether the outside entity's numbers, one over which it has no direct control, are accurate. This could be extremely expensive and time-consuming and hence, burdensome for smaller public firms.

It could be an open invitation for lawsuits. Indeed, these have already begun. For example, a Dutch court in 2021 ordered Shell in 2021 to curtail not only its Scopes 1 and 2 emissions (the latter being typically a small number in oil & gas companies), but also emissions from the use of their fossil fuel products, i.e., their Scope 3 emissions.⁷ In May 2022, Follow This, a Dutch activist

⁷ Perhaps as a consequence – although the claim of ‘consequence’ is arguably speculative, and based on the Dutch government's reaction that it was “unpleasantly surprised” by the news – Shell in November 2021 decided to drop “Royal Dutch” from its name, and move its senior executives from The Hague to London.

group brought to shareholder vote for Exxon-Mobil to set targets for its Scope 3 emissions (Valle and Krishna (2022)).⁸ Given the implicit imprimatur of corporate responsibility that can attach to required disclosures in a world in which reporting is associated almost entirely with operational or financial decisions that firms are directly only responsible for or have control over, the SEC should give serious consideration to whether such examples may be quite likely just a foretaste of what would likely come if Scope 3 (and perhaps even Scope 2) emissions reporting were mandated.

Conclusion

In summary, my position is that, while it is decision-useful for investors to have Scope 1 and (perhaps) Scope 2 disclosures made available by public firms, it is not simply burdensome, absent further work by regulators and NGOs to establish common definitions, categories, standards and guidance – for not only measurement but also use – it is decision-*irrelevant* and conceptually suspect to require firms to report and investors to digest Scope 3 emissions disclosures.

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⁸ It should be noted that the proposal got only 28% of the shareholder vote, and hence did not pass.

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