Abstract

The Recommendations of the Task Force on Climate-related Financial Disclosures (TCFD) represent an effort to guide organizations as they attempt to disclose clear, consistent, and comparable information about the material climate-related issues they face. How do the design decisions made during the composition of the Recommendations assist or impede this effort? We examine three of these decisions, as well as their rationales and counterfactuals. Part I explores the contentious concept of “materiality” and the TCFD’s financially-oriented interpretation of the term. Part II examines the TCFD’s lean toward flexibility and the consequences this has on reporting comparability. Part III introduces scenario analysis and the TCFD’s decision not to recommend “reference” scenarios. While the TCFD provides a robust process for strategic thinking and disclosure of climate-related issues, these decisions may impede the usefulness of corporate disclosures to the capital market. With experience and refinement of the process through continuous communication and feedback, however, report preparers and users might be able to mitigate these concerns. Either way, the TCFD decisions could have potentially far-reaching influence on the forward evolution of ESG reporting standards.
Introduction

Environmental, Social, and Governance (ESG) information has recently captured the attention of the financial industry. The Global Sustainable Investment Alliance estimated that, in 2016, assets worth $22.89 trillion were under professionally managed responsible investment strategies, representing 26% of all professionally managed assets globally (GSIA, 2016). This interest is due not only to the growing demand for financial products that resonate with the world views of an upcoming demographic, but also because ESG signals could be indicative of companies that are more aware: more aware of their environmental impact and risks; more aware of their social and human capital dependencies; and more aware of how their governance structures affect their business operations. This awareness can translate into business success, and consequently, financial success for those with integrated ESG investment strategies.

Corporate reporting is an important means by which investors gather ESG information about companies, including their ESG practices, philosophies, and goals. According to researchers at the Governance & Accountability Institute, 85% of S&P 500 companies produced sustainability reports in 2018 (G&A Institute, 2018). Notably, investors have been demanding disclosure about how companies are positioning themselves in response to imminent climate-related risks and opportunities (collectively, climate-related issues).

However, climate-related disclosure faces the same barriers to usability that plague general ESG disclosure efforts. In order to produce information that is decision-useful to investors and other financial stakeholders, such barriers must be addressed. These include lack of comparability – a measure of sameness of reported information across organizations; lack of consistency – a measure of sameness of reported information from year to year within a single organization; and lack of context – an understanding of how specific metrics relate to corporate goals and strategy.
within the market. Each of these can be perpetuated by a variety of factors. Lack of comparability is perpetuated by the use of high-level and vague boilerplate language, differences on which indicators to include, differences in the methodologies behind how those indicators are produced, and differences in the definitions of certain key terms (e.g., materiality). Lack of consistency is perpetuated by inconsistencies in how companies collect, process, and disclose their ESG data and efforts over time. Lack of context is perpetuated by the use of generalized metrics without explanation of their importance to the organization, as well as by the disconnect between financial metrics and targeted downstream environmental and social impacts. Each of these exacerbates confusion around best practice for ESG and climate-related disclosure.

Recognizing the need to account for climate-related risk in the financial sector, the G20 finance ministers and central bank governors called upon the Financial Stability Board (FSB) to convene stakeholders and identify a path forward on the issue. The FSB subsequently instituted the Task Force on Climate-related Financial Disclosures (TCFD) in December 2015 with the remit of designing a set of recommendations to help address “the absence of a standardized framework for disclosing climate-related financial risks”, acknowledging that such an absence “makes it difficult for organizations to determine what information should be included in their filings and how it should be presented” (TCFD, 2017a). Composed of 32 members of both users and preparers of financial reports – with representation from the financial sector (banking, insurance, asset management, pension funds), non-financial sector (accounting, consulting, credit rating), and other experts – the TCFD was able to incorporate a wide range of industry stakeholders in its work. The FSB’s instruction that the TCFD’s efforts should not “add to the already well developed body of existing disclosure schemes,” also places the credibility of the Recommendations upon that of the disclosure schemes from which it draws – Carbon Disclosure
The TCFD final report provides voluntary recommendations and guidance designed to help companies disclose material information about climate-related issues in their public financial filings. It provides four widely adoptable recommendations covering core elements of business operations – governance, strategy, risk management, and metrics and targets. Each of the four recommendations is linked to a set of recommended disclosures meant to provide decision-useful information to report audiences. Furthermore, the final report contains suggestions for implementation of the recommendations, guidance for all sectors, as well as supplemental guidance for the financial sector and non-financial industries that are potentially most affected by climate change.

During the composition of the Recommendations, high-level design decisions were made in an attempt to maximize their effectiveness toward the goal of enabling clear, consistent, and comparable financial disclosure on climate-related issues. We seek to elucidate three of these decisions by discussing their possible rationales, comparing the realized form of the Recommendations against its counterfactuals, and by hypothesizing possible ramifications of the decisions for the evolution of ESG reporting standards. Part I evaluates the decision to use a financially-oriented interpretation of materiality as opposed to a broader sustainability-oriented interpretation. Part II evaluates the TCFD’s decision to err on the side of flexibility in the construction of the Recommendations and the ramifications this flexibility has on disclosure
comparability. Part III evaluates the TCFD’s decision not to recommend specific reference climate scenarios for the purpose of climate-related financial disclosures.

Part 1. Financial Materiality and Materiality in Sustainability Reporting

Traditionally, the corporate reporting landscape has been clearly divided into the realms of financial reporting and non-financial reporting. With the emergence of ESG factors that potentially indicate longer-term corporate performance, and as these factors begin to infiltrate standard financial filings, this dichotomy is becoming increasingly blurred. In light of this landscape transformation, the use of the term “materiality” has garnered increased scrutiny. The TCFD’s suggested interpretation of materiality serves to secure another strategic foothold for ESG in financial reports, but does so at the expense of acknowledging the broader impacts that ESG practices have on businesses and the world in which they operate.

Financial reports that require the disclosure of material issues might require disclosure on ESG topics. GRI defines materiality as “the threshold at which Aspects become sufficiently important that they should be reported,” where ‘Material Aspects’ are those that “reflect the organization’s significant economic, environmental, and social impacts; or that substantively influence the assessments and decisions of stakeholders” (GRI, 2016a). Alternatively, SASB abides by the definition applied under U.S. federal securities law set for by the U.S. Supreme Court, in which information is material if there is “a substantial likelihood that the disclosure of the omitted fact would have been viewed by the reasonable investor as having significantly altered the ‘total mix’ of information made available” (TSC Industries, Inc. v. Northway, Inc., 426 U.S. 438 (1976)). Due to potential confusion and, more importantly, liability to companies attempting to comply
with US regulatory filings, SASB suggests that “companies using the GRI standards label information as ‘significant’ or ‘important,’ rather than ‘material’” (Rogers, 2016). Regardless, GRI communicates a distinction between “financial materiality” and “materiality in sustainability reporting”, making sure to stake its definitive position that “[m]ateriality for sustainability reporting is not limited only to those Aspects that have a significant financial impact on the organization” (GRI, 2016b). For now, these organizations agree to disagree on exact definitions, as demonstrated in the Statement of Common Principles of Materiality published by the Corporate Reporting Dialogue, of which both SASB and GRI are active participants (2016).

While the TCFD does not explicitly define “materiality”, it uses the term in a manner that would suggest closer alignment to the “financial materiality” used by SASB than the “materiality in sustainability reporting” used by GRI. The FSB, ostensibly concerned with financial as opposed to sustainability issues, emphasized that the TCFD should “incorporate the principle of materiality”, perhaps purposefully leaving the interpretation broad (FSB, 2015). However, the TCFD consistently uses the term in its discussion of disclosure in mainstream financial filings, strongly suggesting that its use is meant to signal aspects of financial import.

The choice to use a financial interpretation of materiality, indeed the choice to target financial reporting as opposed to corporate reporting at large, represents a statement of beliefs. By narrowing its interpretation of materiality to issues of financial import, the TCFD might be missing out on a great many other issues that, while perhaps not having an immediately discernable impact on the financials of a business, nevertheless have an impact on the environmental and social capital of the world. For instance, it may be the case that, in the name of climate-related financial risk management, an organization might switch suppliers from one
more exposed to physical risk of climate change-induced flooding to one less exposed to such risk, regardless of whether or not the new supplier engages in environmentally or socially damaging practices. Thus, it is possible that the narrow definition would lead to an emphasis on climate change adaptation at the expense of climate change mitigation. A broader interpretation of materiality, such as that used by GRI, would require the explicit acknowledgment of this trade-off. More positively, a firm might deploy its unique capabilities (e.g., Google Maps, Walmart logistics) to support communities and suppliers in disaster relief and climate adaptation as a CSR activity, with spillover effects to other firms in an investment portfolio. By targeting a broader set of stakeholders, a broader definition of materiality should theoretically promote practices that provide greater net benefit to the world, including the financial sector, than practices that prioritize financial optimization for individual organizations. The greater the extent to which portfolios are highly diversified across entire sectors and economies, the more attractive a broader interpretation of materiality becomes due to positive externalities.

Nevertheless, the reporting landscape is still divided into financial and non-financial spheres. While this dichotomy is increasingly being bridged, the targeting of financial disclosure purposefully narrows the scope to those issues that investors might more easily comprehend. Climate-related physical risks – such as flooding, fires, and storm frequency and severity – are relatively easier to quantify in stranded or exposed assets, whereas the transitional risks associated with the global transition to a low-carbon economy – such as carbon pricing, regulatory environment, and technology disruption – and their jeopardy to corporate assets, strategy, and resiliency are slightly more difficult to understand, let alone quantify. The same difficulties are even more pronounced for the climate-related risks to social and human capital, and the downstream effects they might have on business operations. Until companies and
investors are able to draw more concrete links to this effect, climate-related risk is more readily understood in a financial context at the corporate level.

The TCFD does, however, take another step in the direction of integrating traditionally non-financial issues into financial reporting structures. As more indirect, longer-term issues such as climate change are given immediate financial and risk management significance, the barrier between the financial and non-financial reporting spheres could continue to dissolve and allow other issues of sustainability materiality to merge with traditional financial reporting.

**Part 2. Flexibility and Comparability**

The most prevalent tension in debates about standards development is between the enhanced efficiency and comparability engendered by more exacting standards, and the enhanced experimentation and choice allowed for by more flexible standards. Voluntary recommendations such as those released by the TCFD are also subject to the risk of not being adopted. Flexibility in disclosure topics or methods reduces the barrier to entry for report preparers and promotes adoption. However, too much flexibility results in disclosures that are too difficult to compare, greatly diminishing their use to investors and defeating their original purpose. Therefore, not only must the Recommendations hold the tension between opposing standards development philosophies, but they must also do so while taking account of the added complexity of voluntary recommendation adoption dynamics. The result has been a significant amount of leeway in organizations’ disclosure about their climate-change risk and strategy, both in emphasis and degree of detail.
Indicator-based standards, dealing with specific metrics such as “renewable energy intensity” or “employee turnover ratio”, tend to be more restrictive than other types of standards (Nasdaq, 2017). Though these standards normalize reporting across cross-sections of companies or sectors, the TCFD does not recommend any specific indicator-based metrics, releasing reporting organizations from being tied to any one in particular. While it does recommend that organizations “should provide the key metrics used to measure and manage climate-related risks and opportunities,” and “should consider including metrics on climate-related risks associated with water, energy, land use, and waste management where relevant and applicable,” it stops short of dictating what specific indicators organizations should use (TCFD, 2017a). One significant exception is the recommendation that organizations “disclose Scope 1, Scope 2, and, if appropriate, Scope 3 greenhouse gas (GHG) emissions, and the related risks” (TCFD, 2017a). The comparability of these particular metrics is supported by the consensus around their importance as disclosure metrics to all stakeholders, as well as some degree of consensus around appropriate methodologies for GHG indicator calculations.

Methodological standards – designed to support specific indicators with agreed-upon best scientific practices – are just as scarce in the report. Again, the important exception is the reference to the disclosure of GHG emissions, stating that “the GHG Protocol methodology is the most widely recognized and used international standard for calculating GHG emissions” (TCFD, 2017a). This may have been a consequence of the TCFD makeup of industry leaders as opposed to statisticians and metrics engineers, but also could have been a conscious effort to promote the continuation of experimentation in metric calculation and engineering.

The TCFD primarily utilizes process-based standards – recommending that organizations go through best-practice organizational steps by considering certain disclosures and describing
certain practices – which tend to allow for the most flexibility in reporting. In order to have as many organizations as possible adopt a series of recommendations, thereby stimulating an ad hoc “standardization”, the Recommendations sought to appeal to the broadest range of organizations. Process-based recommendations are appealing because much of the value is gained during the internal process itself rather than from their external outcome. Process-based standardization also tends to produce gains in reporting consistency; the existence of processes signifies that more thought has been devoted to the choice and relevance of metrics upfront, and that the process is less likely to jump between different data sources, tools, or even definitions for the same metric formulation. However, reliance on process-based recommendations has consequences to comparability; even if every organization follows the exact same process in the disclosure of their climate-related risks, they have to make decisions about their corporate priorities, disclosure detail, and many other factors at every step of the process, resulting in a wide variety of disclosure outcomes.

The TCFD could have utilized more indicator-based or methodology-based recommendations in an effort to make organizational reporting more comparable on a metric-to-metric basis. However, such recommendations would in many ways be untenable for reporting across industries, let alone across sectors, each of which prioritize different indicators. Thus, such recommendations would run the risk of weak adoption, and in doing so, perhaps even damage the credibility of the other recommendations. As such, it relies on process-based recommendations to support flexibility and consistency in reporting at the expense of direct comparability.
Part 3. Climate-Related Scenario Analysis and Reference Scenarios

As part of its Strategy recommendation, the TCFD recommends the use of scenario analysis as a way for companies to not only disclose the climate-related issues they face, but also to promote strategic thinking processes that consider the inherent uncertainty in climate impacts. According to the TCFD, “a scenario describes a path of development leading to a particular outcome” (TCFD, 2017b). A scenario is not a predictive forecast, as it does not necessarily ascribe probabilities to the paths. Nor is it a sensitivity analysis, meant to measure an outcome’s sensitivity to differences in a particular input variable. A scenario is simply a hypothetical construct of a plausible future that an organization wishes to examine such that it may formulate its response or mitigation of inherent risks should such a scenario, however unlikely, come to fruition.

In order to provide the most informational value to investor audiences, as well as strategic value to the preparing organizations themselves, the TCFD draws from work from the World Bank outlining specific characteristics of good scenarios (Maack, 2001; TCFD, 2017a). These include that the scenarios are plausible, distinctive, consistent, relevant, and challenging. When scenarios are designed to embody these characteristics, scenario analysis can be more effective at putting organizational goals, actions, and data into context. The recommended process for conducting a climate-related scenario analysis is illustrated in Figure 1.
**Figure 1. A Process for Applying Scenario Analysis to Climate-Related Risks and Opportunities**

1. **Ensure governance is in place**: Integrate scenario analysis into strategic planning and/or enterprise risk management processes. Assign oversight to relevant board committees/sub-committees. Identify which internal (and external) stakeholders to involve and how.

2. **Assess materiality of climate-related risks**
   - Market and Technology Skills
   - Policy and Legal
   - Reputational
   - Physical Risks

   What are the current and anticipated organizational exposures to climate-related risks and opportunities? Do these have the potential to be material in the future? Are organizational stakeholders concerned?

3. **Identify and define range of scenarios**

   Scenarios inclusive of a range of transition and physical risks relevant to the organization

   What scenarios (and narratives) are appropriate, given the exposures? Consider input parameters, assumptions, and analytical choices. What reference scenario(s) should be used?

4. **Evaluate business impacts**

   Impact on:
   - Input costs
   - Operating costs
   - Revenues
   - Supply chain
   - Business interruption
   - Timing

   Evaluate the potential effects on the organization's strategic and financial position under each of the defined scenarios. Identify key sensitivities.

5. **Identify potential responses**

   Responses might include:
   - Changes to business model
   - Changes to portfolio mix
   - Investors in capabilities and technologies

   Use the results to identify applicable, realistic decisions to manage the identified risks and opportunities. What adjustments to strategic/financial plans would be needed?

6. **Document and disclose**: Document the process; communicate to relevant parties; be prepared to disclose key inputs, assumptions, analytical methods, outputs, and potential management responses.

Source: TCFD, “Final Report” (2017A)

While the process embodies many good principles of a typical large-scale business analysis, the inter-organizational, let alone inter-sectoral, comparability is diminished at every step. Each stage requires that the organization make choices about its objectives, priorities, and information. This includes decisions on parameters used, assumptions made, and analytical choices. The TCFD acknowledges the challenge for “direct comparability” that this presents (TCFD, 2017b).

Furthermore, the results of any scenario analyses are subject to various types of uncertainty. In general, these involve input parameter uncertainty – the uncertainty around the distribution of possible parameter values; model uncertainty – the uncertainty around a model’s representation of the scope and mechanisms at play in the real world; and deep uncertainty – the uncertainty of anything of which the modelers are not even aware. Climate-related scenarios abound,
encompassing countless dynamic physical and economic variables as well as each type of uncertainty. The AR5 IPCC assessment report contains a climate scenario database of 1,184 scenarios from 30 models published in peer-reviewed literature (IIASA, 2014; IPCC, 2007). These vary widely in their degree of climate change (with associated physical risk) and in their degree of socio-political and technological response (with associated transition risk).

In the face of virtually infinite possible combinations of variables, model constructions, and their resulting simulated climate scenarios, the idea of recommending specific “reference scenarios” for organizations to use in order to increase disclosure comparability has been a topic of much debate. These sanctioned scenarios would serve as a basis for the modeling exercises of participating organizations. If an organization were to use the reference scenario as is, its exposure and resilience to such a scenario could be easily compared to those of other organizations that used the same scenarios in their disclosures. If the organization felt that the reference scenario did not accurately reflect the climate future most impactful to its unique business, it might be required to document and disclose the changes in model or parameters that produced the analyzed scenario.

The TCFD, acknowledging that such reference scenarios would be “intuitively appealing,” nevertheless stated that it is “not a practical solution at this time” because “[e]xisting, publicly available climate-related scenarios are not structured or defined in such a way that they can be easily applied consistently across different industries or across organizations within an industry” (TCFD, 2017a). Indeed, as presented by Zita Marko Daatland, vice president of energy markets, macroeconomics and analytics at Equinor (then Statoil), there is often confusion between scenarios meant to represent “base-case”, “central-case”, “reference”, “business-as-usual”, and
“most probable” futures (Marko Daatland, 2017). Very rarely are any of these aligned, and organizations and investors alike must be wary of conflating them.

Short of dictating any parameter values or model constructions, “[b]est practice is to perform a Monte Carlo simulation on all models of the same type, using the same underlying probability distributions for parameters” (Paltsev, 2017). Though there is nothing to be done about deep uncertainty, “[t]he resulting distribution of model outcomes would integrate both the parametric uncertainty and a subset of model uncertainty as represented by the models included” (Paltsev, 2017). Finally, it is important not to fall into the common scenario analysis trap of discounting extreme scenarios and “chop[ping] off the tails of the distribution” (Roxburgh, 2009). Indeed, the tails of climate scenario distributions have severe ramifications on the valuation of catastrophic outcomes and the necessity of precautionary action (Pindyck, 2011; Weitzman, 2011).

Such a sophisticated exercise is a heavy lift for all but the most well-resourced organizations. Anticipating this burden, the TCFD emphasized that the more resources available to the organization, and the more exposed to climate-related risk the organization is, the more quantitative rigor the organization should devote to scenario analysis (TCFDa, 2017). Otherwise, due to the present obstacles involved in standardizing climate-related scenarios, the TCFD stresses the need for transparency and urges organizations to disclose as many of the parameters used, assumptions made, and analytical choices arrived at in the execution of the analysis. Much like indicators, different scenarios offer very different information about a company. Some scenarios might not have any relevance to organizations in a certain geographic region or with a specific supply chain. Because climate scenarios have traditionally been simulated at the global scale, there is a mismatch in context and granularity that precludes reference scenarios from being chosen for all reporting entities.
Conclusion

The TCFD’s financial interpretation of “materiality” serves to carve out a place in financial reporting for climate-related disclosure. While it did not attempt to integrate climate-related disclosures into all reporting outlets at once, securing the attention of investors and a foothold in the realm of financial disclosure could provide precedent for more ESG issues to be integrated into mainstream financial reports over time. In this way, it may have indirectly nudged the field in the direction of integrated reporting.

In an attempt to cater to the diverse needs of a particularly heterogeneous preparer base, the TCFD decided to prioritize flexibility in the construction of the Recommendations. This decision produces significant challenges for report comparability. As organizations continue to adopt the suggested disclosures, implicit and explicit codes of what should be disclosed (and how) could arise within specific industries. Going forward, continuous dialogue around the science and best-practice of disclosure, facilitated by active knowledge platforms such as the Reporting Exchange or the TCFD Knowledge Hub, will be crucial to the improvement of reporting comparability (CDSB, 2018; WBCSD, 2017). The TCFD has provided a common starting block from which these necessary conversations might advance. This is especially true of the complex exercise of climate-related scenario analysis.

Climate-related scenario analysis provides the benefits of long-term strategic thinking while simultaneously providing context for report audiences about the strategic positions of organizations. The decision against providing reference climate scenarios was supported by the rationale that scenario analysis, while not a new technique, is being applied to the practice of financial disclosure in a novel way. Climate scenarios, as with the outputs of any analytical exercise, inherently contain multiple types of uncertainty and ample opportunity for
customization and choice, inhibiting efforts to converge on any standard scenarios. Furthermore, the scenarios in existence during the creation of the Recommendations were not produced for the purposes of organizational level disclosure, but rather focused on the climate and economy at a global scale. As the science-policy of climate-related scenario analysis for financial disclosure progresses, iterations of industry and region-specific scenarios might come to serve as references for more comparable disclosures. Currently, however, climate scenarios must undergo a transformation to deal with the granular issues of organizational level financial disclosure.

Given its position in recommending voluntary disclosure practices, the TCFD was forced to strike a balance between flexibility and comparability in such a way that would maximize its effectiveness in achieving its goals. The decisions in the design of the Recommendations suggest that the TCFD prioritized flexibility of reporting over comparability. This may support the TCFD’s objective of driving better strategic thinking among firms, but may also limit the usefulness of disclosures to the capital markets. How these decisions play out in the resulting reporting landscape remains to be seen. As the reporting landscape continues to evolve, there is a critical role for future research: to observe the in-use scenario planning, measurement, and disclosure activities on the preparation side; and to monitor how investors make decisions in light of TCFD-enabled information flows on the usage side. The speed of adoption, the accuracy of disclosure, and the comparability and consistency of information for good decision-making are all success indicators toward this effort. Subsequent studies will reveal the TCFD Recommendations’ effectiveness in achieving these objectives, and what – if any – tradeoffs will have to be made in the process.
References


Rogers, J. (2016). Transition to GRI Standards: Public comments received via email. GRI.


TCFD. (2017b). Technical Supplement | The Use of Scenario Analysis in Disclosure of Climate-Related Risks and Opportunities.


https://doi.org/10.1093/reep/reer006.