

The “Materiality Meter”

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As corporate boardrooms begin to consider whether and to what extent to include climate-related disclosures in future financial filings, [as recommended by the Financial Stability Board’s Taskforce on Climate-related Financial Disclosures \(TCFD\)](#), the

need to quantitatively assess the materiality of climate risk will move center stage. Listed companies will need a “materiality meter” to objectively measure their financial exposure to climate risk as a critical first step in assessing the information investors will need to make informed decisions.

Materiality and Climate Risk

Most information included in the financial filings of listed companies is subject to a materiality assessment. Typically, this involves consideration of *facts* and their relevance to “reasonable investors”. Where, on the other hand, the matter is *contingent* or *speculative* in nature, as is the case with climate risk, the assessment of materiality is more difficult.

For corporate boards and managers disinclined to openly discuss potential climate-related financial impacts, materiality (more specifically, the presumed lack thereof) will quickly surface as a rationale for silence. Such thinking is misguided for at least three good reasons.

First, contingent or speculative events are not immaterial simply because they are contingent or speculative. The materiality of contingent or speculative events depends on the significance the reasonable investor would place on the withheld or misrepresented information.

Second, absence of evidence is not evidence of absence. It's no longer reasonable for managers to blindly assume that climate risks are immaterial. Sound governance dictates that boards have reasonable assurance about management's capability to identify and address climate-related risks. Climate-related materiality assessments should be supported by defensible, quantitative analysis that can be shared with investors. Silence will speak volumes.

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Third, it is feasible to quantitatively assess the materiality of a company's exposure to climate-related financial impacts. The significance of contingent or speculative events to investors

depends on both the likelihood of occurrence and the magnitude of potential impact. Probabilistic analysis of plausible future scenarios (“scenario analysis”) is an accepted way to assess the potential financial impacts of a range of uncertain future states. The objective of scenario analysis is not to predict what will happen but to help plan for what might happen.

Using Scenario Analysis to Assess Materiality

The TCFD disclosure framework presents a sort of “chicken and the egg” problem of which comes first— materiality or scenario analysis. The TCFD recommends that companies disclose “the actual and potential impacts of climate-related risks and opportunities on the organization’s businesses, strategy, and financial planning *where such information is material.*” Where management deems such information to be material, it should describe “the resilience of the organization’s strategy, taking into consideration different climate-related scenarios, including a 2°C or lower scenario.” This begs the question: How can

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From management's perspective, scenario analysis can serve multiple purposes: 1) assessing climate-related value at risk; 2) informing policies that are optimally robust against a range of uncertain future states; and 3) determining whether the materiality threshold has been met, which in turn should govern the extent of financial disclosure.

The planning and analysis departments of many large companies are accustomed to using scenario analysis to inform strategy based on consideration of a broad range of uncertain future costs, prices, and growth, interest, and exchange rates. However, their legal and finance departments are not accustomed to disclosing this information to investors. Going forward, disclosure will be a critical consideration. If the company uses climate-related scenario analysis to inform corporate strategy, it should ask

whether such analysis is *ipso facto* material to investors. From the organization's silence, investors can infer that management is not using scenario analysis to plan for potential climate-related impacts, and respond accordingly.

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From the capital market perspective, investors can use investee disclosures of climate-related scenario analysis to assess the credibility of firms' transition plans and their ability to execute them, and analyze the potential changes in value of assets and liabilities that could result from a transition to a lower carbon economy or to other climate-related events (e.g., physical or legal risks). This enhances investors' ability to manage and price these risks and, if they wish, to take lending or investment decisions based on their view of transition scenarios. Going forward, investors must resist the temptation to characterize forward-

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Best Practices

As with pension planning and capital budgeting, modern scenario analysis uses stochastic scenario generation to consider a wide range of plausible future states. After the scenarios have been generated, non-linear optimization is generally used to quantitatively assess the results of alternative management policies across a long-term planning horizon.

A mathematically robust analysis starts with the company's current financial condition and then employs a scenario generation system to produce a large number of plausible future states. Each scenario reflects the interaction of a multitude of

uncertain financial, macro economic and industry specific variables, including future costs, prices, and interest, exchange and growth rates. Other important considerations include known trends, events, or uncertainties, such as climate-related impacts and the transition to a low carbon economy, which might affect the company's liquidity, capital resources, or results of operations.

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The large number of scenarios forms the basis of a probability distribution of future financial results (revenues, costs, earnings, return on capital, etc.). A probability distribution in turn enables management to describe the resilience of the organization's strategy in statistical terms. For example, after performing rigorous scenario analysis, management might state with reasonable assurance that: "Based upon our internal scenario planning and analysis, taking into consideration our current management policies and different climate-related scenarios,

including a 2°C scenario, there is an 80 percent probability of future average annual returns on capital employed (ROCE) within a range of 12% and 22% over the 2050 planning horizon, and there is less than a 10% probability of average annual returns on capital of less than 12% or of greater than 22%.” Management could then describe steps taken to adopt a strategy and a consistent set of policies that are resilient under different climate-related scenarios.

Conclusion

Scenario analysis is the appropriate way to plan for potential climate-related financial impacts and to determine, as a threshold matter, whether climate risk is material to investors. In the chicken and egg metaphor, scenario analysis comes before materiality. If management uses climate-related scenario analysis to inform corporate strategy, such information is, on its face, material. But the opposite is not true. Absence of evidence is not evidence of absence. Corporate managers and investors, as

preparers and users of climate-related financial disclosures, need appropriate policies and procedures to ensure proper materiality assessment and disclosure.

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