CHANGING COURSE

A comprehensive investor guide to scenario-based methods for climate risk assessment, in response to the TCFD

May 2019
Twenty institutional investors from eleven countries, convened by UNEP FI and supported by Carbon Delta, have worked throughout 2018–2019 to analyse, evaluate, and test, state-of-the-art methodologies to enable 1.5°C, 2°C, and 3°C scenario-based analysis of their portfolios in line with the recommendations of the FSB’s Task Force on Climate-related Financial Disclosures (TCFD). The outputs and conclusions of this Pilot are captured in the following report and aim to enhance the understanding and ease adoption of the TCFD recommendations by the wider investment industry.

UN Environment – Finance Initiative is a partnership between UN Environment and the global financial sector created in the wake of the 1992 Earth Summit with a mission to promote sustainable finance. More than 200 financial institutions, including banks, insurers, and investors, work with UN Environment to understand today’s environmental, social and governance challenges, why they matter to finance, and how to actively participate in addressing them.

Vivid Economics is a strategic consultancy providing our private and public clients with deep sectoral and thematic expertise at the nexus of finance, commerce and the environment. For our financial sector clients, we provide policy and market intelligence, scenario modelling, and risk and opportunity assessment tools that support investment strategy, risk management, investee engagement and financial disclosure.

Carbon Delta is a climate change data analytics firm that quantifies investment risks for more than 30,000 companies along numerous climate change scenarios. With our Climate Value-at-Risk (CVaR) model we aim to empower financial institutions with the tools necessary to protect assets from the worst effects resulting from climate change and also help identify new, innovative low carbon investment opportunities.

www.unepfi.org

www.vivideconomics.com

www.carbon-delta.com
ROCKEFELLER: APPLYING SCENARIO ANALYSIS TO ACTIVELY MANAGED STRATEGIES

Rockefeller Capital Management L.P. is a global investment advisory and asset management firm that provides an array of services to individuals, families and trusts, as well as pensions, foundations, endowments and other institutions. Rockefeller Asset Management (RAM) offers tailored investment strategies with a global sector focus that incorporates an in-depth ESG analysis. It is an active manager and runs concentrated, long-only portfolios. In 2018, we applied the climate model generated by the UNEP FI TCFD Investor Pilot Project to 90% of RAM’s assets under management. Climate change is a key topic of engagement with portfolio companies held in our core investment strategies.

An integrated fundamental approach to assessing climate-related risks and opportunities

A majority of RAM’s climate-related risks and opportunities are embedded within its core investment strategies. Climate-related risks and opportunities are assessed by both the Investment Analysts and the Investment Committee for all portfolio companies entering RAM’s core strategies, regardless of investment objective. Risks, risk mitigation strategies and opportunities are researched, deliberated and presented on an individual company basis to the Investment Committee alongside other elements of fundamental valuation. The Chief Investment Officer chairs the Investment Committee and sits on both the Executive Management Team and Risk Committee of the Firm.

Climate-related risks to portfolio companies are identified through a bottom-up assessment that considers the company’s past emissions performance, strategy to reduce future emissions, regulatory and physical risks within its operations, as well as risks to its product portfolio from demand and technology disruption. RAM joined the UNEP FI Pilot to run our assumptions through climate models that consider the different regulatory and physical risks associated with different emissions pathways. Although we applied the model to approximately 90% of RAM’s assets under management, for the purposes of this case study we are focusing on the results from our Global Equity and Global ESG Equity Strategies. These two were selected due to their similar beta and performance track record. In addition to gaining more insight, we thought it would be interesting to see if considering physical and policy risks would create more dispersion between these two strategies, or at least alter our perception of their risk profiles. We also consider the results from our Global ESG Fossil Fuel Free Equity Strategy to examine how excluding the energy sector value chain proves beneficial or detrimental under the pilot project model.

Modelling policy risk: Global Equity vs Global ESG vs Global Fossil Fuel Free

For the purposes of this model, the differences in the scenarios are inherently about determining policy risk and the cost of those risks. The CVaR results were in line with our expectations on a relative basis: our Global ESG Fossil Fuel Free Equity Strategy fared better than both our Global ESG Equity Strategy and our Global Equity Strategy under a 1.5°C and 2°C scenario. This is mostly attributable to the Global ESG Fossil Fuel Free Equity Strategy’s exclusion of the energy sector value chain, which should face the heaviest regulatory headwinds under these scenarios. The Global ESG Fossil Fuel Free Equity Strategy does not contain producers, refiners, transporters or vendors of fossil fuels, and excludes utilities that generate power from non-renewable resources, and returned a CVaR of -1.1%.
Changing Course | Operationalising the Methodology

Table 27: Rockefeller portfolio CVaR results comparison

<table>
<thead>
<tr>
<th>Portfolio name:</th>
<th>Global ESG Fossil Fuel Free Equity Strategy</th>
<th>Global ESG Equity Strategy</th>
<th>Global Equity Strategy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Portfolio VaR:</td>
<td>-1.1%</td>
<td>-1.4%</td>
<td>-2.6%</td>
</tr>
</tbody>
</table>

Source: Rockefeller, Carbon Delta

As anticipated, the Global ESG Equity Strategy had a lower CVaR at -1.4% than the Global Equity Strategy at -2.6%. As carbon footprinting is the basis for policy risk analysis under this model, we can note the resilience of both the Global ESG Fossil Fuel Free Equity Strategy and the Global ESG Equity Strategy relative to the Global Equity Strategy. This was to be expected given that the Global ESG Strategy has less of an allocation to energy and utility stocks relative to the Global Equity Strategy and the benchmark. Additionally, all energy and utility names that qualify for the Global ESG Equity Strategy must have emission reduction targets in place and a plan to reduce those emissions, and show a track record of meeting or exceeding targets.

However, although the carbon footprint for Global ESG Equity Strategy is 35% lower than that of Global Equity Strategy, it is only 20% more than the Global ESG Fossil Fuel Free Equity Strategy, despite holding an active weight of energy companies. Looking deeper into the analysis we can understand why: the reliance on Scope 1 emissions data as the basis for the policy risk assessment.

For both the Global ESG and Global Equity Strategies, energy names do not comprise most of the policy risk on an absolute or portfolio-weighted basis. Since the model considers only Scope 1 emissions, there is a sector bias depending on how carbon is consumed along a company’s value chain. A majority of emissions for companies in the materials sector fall into the Scope 1 category, whereas the majority of emissions in the energy and transportation sectors would be considered Scope 3. As a result, materials companies contributed the highest policy risk on an absolute and portfolio-weighted basis for all three strategies, followed by transportation and energy for Global ESG, with energy coming in fourth for Global Equity, behind utilities and transportation.

The reliance on current Scope 1 emissions for determining the forward emissions trajectory of a company highlighted a gap in the model that conflicts with our own fundamental research. Carbon footprinting is a backward-looking metric, and it is likely to require more forward-looking nuance to quantify policy risk with more accuracy. Here, the intrinsic and macro context of the sector is critical to consider. For example: While materials companies would need to evolve their operations away from fossil fuel power and heat generation, energy companies would have to change their business models entirely. This is a dynamic that clearly shows a greater inherent risk to energy companies as changing an entire business model requires substantially more investment than merely shifting operational infrastructure (such as kilns and power plants). Additionally, demand for materials such as cement is less likely to be disrupted by emerging technologies when compared to the potential demand for fossil fuels to be displaced by renewables and electric vehicles.

The importance of fundamental research

Going a step deeper, our own assessments have concluded that the carbon policy risk profiles of our materials holdings vary widely, whereas the model gave us similar risk and enterprise value figures. As an example: we hold two cement companies, and while they are classified in the same subsector, we deem one cement company as having significantly higher risk than the other. While one company commits more than 80% of its R&D budget to developing lower-embedded carbon alternatives and has set a science-based target in line with the 2°C scenario, the other company has historically fallen short of its emission reduction targets. While one company has integrated carbon reduction into its core operational directives, the other has not made asset allocation decisions to that effect, nor does this issue seem to be embedded in senior management’s strategic decision-making. This kind of insight and information was gathered through frequent meetings with the C-suites and site visits with operational division heads for both companies. This type of analysis is currently not reflected in the model, leading the policy and enterprise risk for both companies to be relatively in line for all scenarios.
Physical risk: Global Equity vs Global ESG

Given that the emissions concentrations currently in the atmosphere will dictate the climate conditions up to 2035, there should not be much variation in the estimated physical risks across scenarios. Interestingly, the physical risks embedded in both the Global Equity and Global ESG Equity Strategies are quite similar. Coastal flooding and extreme heat make up the majority of the physical risks to both strategies. However, one question this analysis did raise surrounds the ‘Extreme Weather Cost on Enterprise’ metric, which estimates the reasonable cost to repair damages from certain physical risks. The company with the highest Extreme Weather Cost on Enterprise for both strategies is a consumer health company that owns and operates pharmacies throughout North America. As a result of its exposure to heat, high winds and flooding from hurricanes, the model has determined that it will have the highest costs on an annual basis. Interestingly, 70% of the Global Equity Strategy and 60% of the Global ESG Equity Strategy’s top ten companies showing the highest Extreme Weather Cost on Enterprise all have thousands of retail locations.

This raised a question surrounding the real costs to repair retail locations versus the cost and time it would take to repair, say, a semiconductor manufacturer needing to replace expensive, bespoke industrial machinery. There is also the risk to revenue disruption that needs to be considered. Although a business might have fewer locations, which reduces the likelihood of an extreme weather event impacting operations, it could raise the risk that an extreme weather event could stop a critical part of the manufacturing supply chain or require hundreds of millions of dollars in rebuilding capital equipment.

Despite this gap in the model, physical risk data points would be helpful to our process as we engage our portfolio companies around resiliency planning for extreme weather events.

Investment implications

This process has elicited key questions for RAM: should we be investing today to prepare for a future of less likely policy scenarios? Given that increasing climate volatility is a systemic risk to global markets, should we be investing to decrease the likelihood of warming trajectories despite lagging policy? Can we, in fact, do both?

The best we can determine is that pushing emissions-heavy industries to decarbonise could be more effective than divesting. It serves the purpose of both reducing the amount of carbon in the atmosphere and minimising regulatory risk from carbon pricing schemes. The flexibility of active management would allow us to take advantage of opportunities, should the probabilities of the 1.5°C and 2°C scenario increase. Regardless, the physical and policy risk values generated by this model can enable a more precise engagement with our portfolio companies.

Challenges for active managers and concentrated portfolios

The core of RAM’s research approach is to work closely with companies in an effort to understand their risk management approaches to climate change, including emissions target setting, remuneration tied to energy or emission reduction, capital expenditure for efficiency improvements, targets for renewable power procurement, and capital allocation toward less carbon-intensive projects, among others. A significant gap in the model is that is does not provide a place to reconcile the information gleaned from this type of research with assumptions from the datasets. The subsequent iteration of this model should include a way to project future emissions trajectories. Such projections could be adjusted to reflect company commitments and not just policy risks.

Another issue arises for active managers when it comes to financial modelling for concentrated portfolios. Every company across RAM’s core investment strategies has been valued according to our analysts’ bespoke proprietary models, with differing assumptions, perspectives and discount rates. The current model does not allow for an adjustment to the WACC or discount rates used to determine terminal values. Therefore, it is difficult to embed the magnitude of the risk to the future value of a company when there is a disagreement as to what that future value will be. Applying blanket modelling for valuation does not fully serve our purposes as an active manager.
RAM’s analysts speak with the managers of our portfolio companies on a regular basis to gain insight on the myriad of issues that a changing climate poses to their businesses. A critical part of these conversations is to apply shareholder pressure to challenge their processes, advocate for more aggressive targets for emission reductions, as well as encouraging them to build the internal management structure needed to make real progress on climate issues. In this regard, the underlying data from the model would be very useful as we could use the individual risk metrics and enterprise estimates to better understand a company’s own assumptions on the risks they face.

Given the speculation regarding emissions trajectories and the likelihood of the 1.5°C and 2°C scenarios coming to pass, it will be challenging for RAM to practically apply the aggregate CVaR for investment purposes without further customisation. However, we hope that by undertaking this exercise, we can discuss the outcomes of this analysis with our portfolio companies as a way to challenge and encourage them to conduct a similar type of policy and regulatory risk modelling as per the UN TCFD recommendation guidelines. RAM’s hope is that this exercise can deepen the conversation between companies and their investors and encourage the systematic disclosure of climate risks and opportunities throughout the public markets.