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Mr. David M. Gillers
MRAC Climate Subcommittee Alternate Designated Federal Officer and Chief of Staff to Commissioner Rostin Behnam
U.S. Commodity Futures Trading Commission
1155 21st St NW
Washington, DC 20581

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May 14, 2020

Re: **Climate-Related Market Risk Subcommittee Under the Market Risk Advisory Committee**, 85 Fed. Reg. 20,678 (Apr. 14, 2020)

Dear Mr. Gillers,

IHS Markit[1] is pleased for the opportunity to comment on the Market Risk Advisory Committee's ("MRAC") Climate-Related Market Risk Subcommittee's ("Subcommittee") priorities. We believe the issues to be addressed by the Subcommittee are of the utmost importance and careful consideration should be given to ensure that the Subcommittee's work makes a lasting contribution to policy thinking regarding climate-related financial risk ("CRFR"). In this light, we support the Subcommittee's April 14 request for public comment ("RFPC")[2] as we think public comment at this stage will assist the Subcommittee in prioritizing the issues it will address in a report to be published, as we understand it, later this year.

As a third-party service provider, we reserve our comment on areas where our expertise can assist the Subcommittee deliver a report that meets the Subcommittee's intended objectives, e.g., improvement of scenario analyses. We do not opine on policy initiatives that might be appropriate as those are best produced as an outcome of dialogue between market participants and policymakers. We focus our comments instead on scenario analysis which we believe is foundational to measuring (pricing) CRFR which, in turn, can assist in identifying the appropriate policy response to managing climate risk.

I. Executive Summary

We recommend the Subcommittee to focus its efforts on the foundational issue of

[1] IHS Markit is a global information and services company that provides data, insight, and solutions across 17 industries. IHS Markit is a NASDAQ-listed public company under the ticker "INFO." IHS Markit has approximately 15,000 employees in 35 countries, including over 5,000 employees in the United States with offices in 21 states and the District of Columbia. IHS Markit resources include more than 5,000 analysts, data scientists, financial experts and industry specialists. Our global information expertise spans numerous industries, including leading positions in finance, energy and transportation. Please see https://www.ihsmarkit.com for more information.

[2] Climate-Related Market Risk Subcommittee Under the Market Risk Advisory Committee, 85 Fed. Reg. 20,678 (Apr. 14, 2020), https://www.cftc.gov/sites/default/files/2020/04/2020-07860a.pdf

scenario analysis, which, in turn, can enhance the ability to measure (or price) CRFR. The Subcommittee can make material contributions to CRFR scenario analysis by (a) tightly defining the range of material scenario variables and (b) identifying the appropriate and transparent models to use assign values to the scenario variables. IHS Markit does not opine on policy initiatives and best practices for risk management and disclosure of financial and market risks related to climate change. Finally, and as a general point, the Subcommittee should encourage collaboration among policymakers, including the CFTC, to ensure a consistent and efficient approach to identifying and managing climate-related risks

II. Comments

1. The Subcommittee should focus its efforts on the foundational issue of scenario analysis, which, in turn, can enhance the ability to measure (or price) CRFR

The RFPC asks for comment on the following issues and topics:

- Identifying challenges or impediments to evaluating and managing climate-related financial and market risks;
- Identifying how market participants can improve integration of climate-related scenario analysis, stress testing, governance initiatives, and disclosures into financial and market risk assessments and reporting;
- Identifying policy initiatives and best practices for risk management and disclosure of financial and market risks related to climate change that support financial stability;
- Identifying appropriate methods by which market participants' data and analyses can enhance and contribute to the assessment of climate-related financial and market risks and their potential impacts on agricultural production, energy, food, insurance, real estate, and other financial stability indicators; and
- Identifying financial and market risks arising from potential economic policy responses to climate change.

While all these topics are valuable to explore, addressing all of these issues would likely exhaust the Subcommittee's limited resources. We would advise the Subcommittee to therefore focus on what we believe is the foundational to all of these issues identified above: evaluating (pricing) CRFR. At the core of pricing CRFR is the creation of a framework for scenario analysis that is relatively objective and results in outputs that are comparable across firms. Accordingly, our suggestions for the Subcommittee is as follows:

2. The Subcommittee can make material progress on CRFR scenario analysis by (a) tightly defining the range of material scenario variables and (b) identifying the appropriate models to use assign values to the scenario variables

The primary "challenges or impediments to evaluating and managing climate-related financial and market risks" is the difficulty of evaluating (pricing) CRFR objectively. At the core of these "challenges" is scenario analysis. We recommend the Subcommittee focus its efforts on scenario analysis and leverage work already conducted by policymakers. We refer to, in particular the Bank of England's ("BOE") recent discussion paper ("BOE DP") on

"The 2021 biennial exploratory scenario on the financial risks from climate change."[3]

In order to assist firms and investors to begin to price future CRFR using scenario analyses, we recommend:

a. **The Subcommittee should tightly define material scenario variables**

Scenario variables will need to be well-specified so as to enable at least some amount of comparability among scenario analyses. The BOE DP provided the following table to describe "indicative scenario variables."

Table 4.A Indicative scenario variables for the proposed BES scenarios[(a)(b)]

Climate risk variables		Macrofinancial variables	
Physical variables	Transition variables	Macroeconomic variables	Financial market variables
• Global and regional temperature pathways. • Frequency and severity of specific climate-related perils in regions with material exposure (including UK flood, subsidence and freeze). • Longevity. • Agricultural productivity.	• Carbon price pathways. • Emissions pathways (aggregate, and decomposed into world regions and sectors). • Commodity and energy prices (including renewables), by fuel type. • Energy mix.	• Real GDP (aggregate and decomposed by sector). • Unemployment. • Inflation. • Central bank rates. • Corporate profits (aggregate and decomposed by sector). • Household income • Residential and commercial property prices.	• Government bond yields for major economies. • Corporate bond yields for major economies (investment grade and high yield). • Equity indices. • Exchange rates. • Bank Rate.

(a) The BES would specify a consistent set of variables across all three scenarios. Calibration would depend on the combination of physical and transition risks in each scenario.
(b) The Bank would also use a subset of these variables to understand the interaction between banks' and insurers' responses to the different scenarios — for example, these variables could include more granular detail around UK climate-related perils, adaptability cost, impacts on household income and impacts on property prices. The aim is to improve the Bank's understanding of how climate-related risks impact banks and insurers differently.

In specifying scenario variables, the Subcommittee should focus on identifying variables that will have a material impact on firms' financial risk sensitivity to climate scenarios and providing categorization when there is a meaningful difference among sets of variables.[4]

[3] Discussion Paper re The 2021 biennial exploratory scenario on the financial risks from climate change, Dec. 2019, https://bankofengland.co.uk/-/media/boe/files/paper/2019/the-2021-biennial-exploratory-scenario-on-the-financial-risks-from-climate-change.pdf?la=en&hash=73D06B913C73472D0DF21F18DB71C2F454148C80.
[4] We note that while the BOE's variables are a helpful starting point, the distinction between the physical, transition, macroeconomic and financial variables are not helpful because: (i) these categories are inherently unclear and imprecise; and (ii) the factors are often interrelated. For example, temperature pathways are often considered a physical variable, while emission pathways are considered transition variables. However, in reality, the two are deeply intertwined such that classifying them as different provides little to no analytic value.

b. The Subcommittee should identify appropriate and transparent models to use assign values to the scenario variables

In order to perform a scenario analysis, ranges of values will need to be assigned to scenario variables. In order to begin to perform a scenario analysis using scenario variables to produce a range of values, we think the Subcommittee should identify models that can produce defensible joint future distributions for all the Subcommittee-recommended scenario variables. The Subcommittee should apply particular care to the conditionality and causality relationships between the variables as it considers these models.

We would recommend the Subcommittee identify models that can assign defensible values and recommend an approach to integrating the results of these models to assign joint future distributions for the recommended scenario variables. We note that Integrated Assessment Models[5] attempt to do this but they are generally intricate and without depth. They also rest on dubious foundations containing many arbitrary assumptions (see, for example, those on discounting factors, the specification of the 'damage functions', or joint distributions).

More serious research efforts have been directed towards understanding the relationship between climate and small subsets of those variables, along with other 'micro' variables. A sensible modelling approach, in our view, would be to design a coherent, statistical framework able to combine the results of these models.

With respect to "[i]dentifying appropriate methods by which market participants' data and analyses can enhance and contribute to the assessment of climate-related financial and market risks," we encourage the Subcommittee to ensure that common and standardized definitions are used for important data/metrics to ensure comparability of scenario analysis outputs.

Finally, and in a similar vein, we emphasize the value of using transparent models. This will enable continuous improvement of the models as our understanding of climate risk and its impacts evolve.

3. With respect to pathway variables, the Subcommittee should consider leveraging existing public models

A number of public modelling initiatives should be considered in developing the Subcommittee's recommendations. For example, the Massachusetts Institute of Technology's Integrated Global System Modeling (IGSM) Framework[6] could be used to fix

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[5] See e.g., https://sedac.ciesin.columbia.edu/mva/iamcc.tg/mva-questions.html ("Integrated assessment models (IAMs) are mathematical computer models based on explicit assumptions about how the modeled system behaves. The strength of an IAM is its ability to calculate the consequences of different assumptions and to interrelate may factors simultaneously, but an IAM is constrained by the quality and character of the assumptions and data that underlie the model.").

[6] Integrated Global System Modeling (IGSM) Framework, https://globalchange.mit.edu/research/research-tools/global-framework.

certain climate-related variables, particularly pathway-type variables like temperatures and emissions.

The use of such public models will ensure that reduce variance in results, enhancing comparability of results. To the extent model inputs A particular firm's climate risk-related financial risk model results will then depend on the firm's portfolio and the assumptions for key variables.

4. **IHS Markit will not opine on policy initiatives and best practices for risk management and disclosure of financial and market risks related to climate change**

With respect to "identifying policy initiatives and best practices for risk management and disclosure of financial and market risks related to climate change that support financial stability," the second set of topics and issues included in the RFPC, we defer to the dialogue between and among market participants and policymakers. As a third-party service provider, we reserve our comment on areas where our expertise can assist the Subcommittee embark on a constructive analysis of what policy options may be most effective. As discussed above, we think the Subcommittee can make progress on maturing and standardizing approaches to scenario analysis, which we think is foundational for measuring/pricing CRFR. Measuring CRFR is critical in considering which policy prescriptions are appropriate.

5. **The Subcommittee should encourage collaboration among policymakers, including the CFTC, to ensure a consistent and efficient approach to identifying and managing climate-related risks**

As we've stated above in several places, the Subcommittee should aim to contribute to standardization and consistency of the outputs of climate-related risks. This includes encouragement of CFTC and other policymakers, US and non-US, financial and non-financial, to work together to ensure a consistent approach. Ad hoc and unilateral policy actions will needlessly complicate and potentially politicize an earnest effort and common interest in identifying and managing climate risk.

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IHS Markit appreciates the opportunity to provide these comments to the Board. We would be happy to elaborate on or further discuss any of the points addressed above. If you would like to follow up on our comment letter, please contact Salman Banaei, Americas Head of Regulatory Affairs and a Member of the MRAC, salman.banaei@ihsmarkit.com or 202.339.2339.