Dear Colleagues,

The abstract for the project that I have been working on (**Rising Temperatures, Falling Ratings: The Effect of Climate Change on Sovereign Creditworthiness**) with Patrycja Klusak (Norwich Business School, University of East Anglia), Matthew Agarwala (Bennett Institute for Public Policy, University of Cambridge), Matt Burke (Sheffield Business School, Sheffield Hallam University), and Moritz Kraemer (LBBW Bank) is below.

Abstract: Enthusiasm for 'greening the financial system' is welcome, but a fundamental challenge remains: financial decision makers lack the necessary information. It is not enough to know that climate change is bad. Markets need credible, digestible information on how climate change translates into material risks. To bridge the gap between climate science and real-world financial indicators, we simulate the effect of climate change on sovereign credit ratings for 108 countries, creating the world's first climate-adjusted sovereign credit rating. Under various warming scenarios, we find evidence of climate-induced sovereign downgrades as early as 2030, increasing in intensity and across more countries over the century. We find strong evidence that stringent climate policy consistent with limiting warming to below 2°C, honouring the Paris Climate Agreement, and following RCP 2.6 could nearly eliminate the effect of climate change on ratings. In contrast, under higher emissions scenarios (i.e., RCP 8.5), 63 sovereigns experience climate-induced downgrades by 2030, with an average reduction of 1.02 notches, rising to 80 sovereigns facing an average downgrade of 2.48 notches by 2100. We calculate the effect of climate-induced sovereign downgrades on the cost of corporate and sovereign debt. Across the sample, climate change could increase the annual interest payments on sovereign debt by US$ 22–33 billion under RCP 2.6, rising to US$ 137–205 billion under RCP 8.5. The additional cost to corporates is US$ 7.2–12.6 billion under RCP 2.6, and US$ 35.8–62.6 billion under RCP 8.5
JEL Classifications: C33, C53, G10, G18, H63, O44, Q51, Q54.
Key Words: Sovereign credit rating, climate change, counterfactual analysis, climate-economy models, corporate debt, sovereign debt.

Publication: The paper was recently accepted for publication in *Management Science*.

Cambridge Working Paper Version: The working paper version is available from here **CWPE 2127.**

VoxEU Column: You can also read a VoxEU column entitled **Rising temperatures, melting ratings** based on this work **here**.

Media Coverage: This paper has been covered extensively in major international news outlets including, **Bloomberg**, **Financial Times**, **Forbes**, **Guardian**, **The Hill**, **The New York Times**, **Reuters**, **Politico**, **The Telegraph**, **The Times**, **Bloomberg, Financial Times** and **Bloomberg Markets Magazine**. It has also been featured in national news agencies in Brazil, China, India, Mexico, Netherlands, Poland, Singapore, the United Kingdom, and the United States, to name a few.

Awards: This paper was named runner-up in the **Financial Times Responsible Business Education Awards** in the category "academic research with impact".

University of Cambridge News: The paper was also highlighted by the **University of Cambridge Research News** and **Judge Business School News**.

Best, Kamiar