## Are Climate Change Risks Priced in the Stock Market?\*

Michael Donadelli<sup>†</sup> Patrick Grüning<sup>‡</sup> Steffen Hitzemann<sup>§</sup>

November 2018

## Abstract

To answer this question, we develop a general equilibrium asset pricing model featuring climate change risk. The model particularly accounts for the different dimensions of climate change and allow us to characterize risk premia for *climate productivity risk* and for *climate policy risk*. We confront the model predictions with the data by analyzing the stock market performance of climate sensitive vs. robust industries and dirty vs. clean industries. Our results are consistent with an increasing awareness of investors for climate change risks since the beginning of the 2000s. We also show that the productivity risk and policy risk dimensions of climate change can well be separated in the cross-section of stock returns.

<sup>\*</sup>We gratefully acknowledge research and financial support from the Research Center SAFE, funded by the State of Hessen initiative for research LOEWE. The views expressed herein are solely those of the authors and do not necessarily reflect the views of the Bank of Lithuania or the Eurosystem.

<sup>&</sup>lt;sup>†</sup>Department of Economics, Ca'Foscari University and Research Center SAFE, Goethe University Frankfurt. Mailing address: Cannaregio 873, 30121 Venice, Italy. E-mail: donadelli.m@unive.it.

<sup>&</sup>lt;sup>‡</sup>Center for Excellence in Finance and Economic Research (CEFER), Bank of Lithuania, and Faculty of Economics, Vilnius University. Mailing address: Totoriu g. 4, 01121 Vilnius, Lithuania. E-mail: PGruening@lb.lt.

<sup>§</sup>Department of Finance and Economics, Rutgers Business School. Mailing address: 100 Rockafeller Road, Piscataway, NJ 08854, United States. E-mail: hitzemann@business.rutgers.edu.