Asset pricing and interest rates under extreme climate change financial risks

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Abstract

We develop a dynamic asset pricing framework with brown and green assets. Green assets are affected by rare natural disasters linked to climate change by rare macroeconomic events. Brown assets are also affected by transition risk which is assumed to be related to physical risk. The novelty of the work is to assume that natural disasters are generated by a self-excited jump. Using analytical results and simulations we show how these natural disasters impact portfolio composition, risk-free rate, credit spread and asset prices.

JEL classification: G11; G12; O44; Q51; Q54.

Keywords: Climate change; Tail events; Time-varying risk; Asset pricing; Interest rates.

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