LUKA MILIC, Toronto Metropolitan University

Investment Strategies in the Face of Climate Uncertainty: Balancing Transition and Physical Risks

In this research, we study the influence of climate change on portfolio construction, focusing on the dual impact of transition and physical risks. We develop a dynamic model that integrates a two-factor mean-reverting framework to represent global temperature variations and transition factors related to climate change. The model is used to examine the optimal stock-bond-cash portfolio selection in a context marked by climate uncertainty. Our approach entails deriving an optimal investment strategy in closed form, initially formulated without considering climate uncertainty. The study also addresses the limitations inherent in a mean-reverting climate assumption and suggests the potential application of Energy Balance Models (EBMs) for a more accurate representation of the climate system. These EBMs open the avenue for leveraging advanced deep-learning techniques for optimal portfolio allocation. The results highlight the critical impact of climate uncertainty on investment strategies, advocating for the integration of climate risk considerations in portfolio management.