



QUICK TAKES

Quick Clips: Can Machine Learning Help Manage Climate Risks?

December 9, 2021

As climate change is becoming an increasingly observed phenomenon and understood to be caused by carbon and carbon-equivalent emissions, investors are adjusting their portfolios to prepare for a future regime shift to a lower-carbon economy. The primary approach taken to prepare for this change is to incorporate carbon emissions in investment selection. However, albeit a practical approach...

... carbon emissions can be a narrow measure of overall climate risk. (0:49)

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The risk of climate change and the increasing attention it receives among financial market participants prompts two critical asset management questions. First, can climate risk have a material impact on the value of a portfolio? Second, how can investors insure their savings against the adverse effects of climate change?

Two key challenges to insuring a portfolio against climate change are measurement and financial engineering. (0:51)

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In our latest [Alternative Thinking](#) article we explore the insights of Engle, Giglio, Kelly, Lee, and Stroebe in “Hedging Climate Change News”, 2020, where they use textual analysis and machine learning techniques to create a broad climate hedging solution based on stocks’ sensitivity to climate news.

Engle et al. (2020) first derive a climate hedging target using textual analysis of news coverage. They measure the level of climate change discourse in a given day by measuring the similarity between a corpus of known climate change text and articles in the Wall Street Journal. Innovations in this climate news measure then form the hedging target.

Once the hedge target is identified, the authors then lean on insights from option-pricing theory to build a portfolio that will increase in value as bad news about climate change arrives. While their emphasis is on hedging climate change news coverage in The Wall Street Journal, the framework is a general, rigorous methodology. It can flexibly accommodate alternative hedging targets that researchers might hypothesize. Indeed, Engle et al. (2020) emphasize that their framework is not a definitive climate-hedging solution, but is instead a launching point for exploring a climate-hedging agenda.

We stress that the framework is not meant as a replacement for carbon-aware investing (0:42)

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We believe that combining multiple views of climate risk will play an increasingly important role in investors’ climate hedging toolkit, and subject to further research, these insights could be used as a complement to carbon-aware investing in defending against climate change.

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