

Summary of A quantity-based approach to constructing climate risk hedge portfolios

Georgij Alekseev et al.

Working Paper

November 27, 2024 Yanrui Zhou

1. What are the research questions?

- Whether quantity-based approach can be used to hedge realizations of climate risks?

2. Why are the research questions interesting?

- A small number of instruments are designed to directly hedge various climate risks.
- Existing approaches are poorly suited in the settings of climate risk.
- This paper proposes a **quantity methodology** to build portfolios using **more assets** to hedge climate risks.

3. What is the paper's contribution?

1. literature that studies the interaction between climate change and asset markets.
 - **Past studies:** focused on different cases.
 - **Expand:** study how to build portfolios to hedge climate risks.
2. Work that studies how individuals form beliefs based on their personal experiences.
 - **Expand:** study the case of fund managers.
3. Literature using quantity and holdings data in asset pricing.
 - **Expand:** quantity information can predict price movements from aggregate shocks.

4. What hypotheses are tested in the paper?

- H1: Mutual funds' portfolios change with managers' idiosyncratic climate belief shocks.
- H2: Quantity-based climate hedge portfolios can hedge climate risks well.

a) Do these hypotheses follow from and answer the research questions?

- Yes, H1 is the basis of H2 and H2 answer the question directly.

b) Do these hypotheses follow from theory? Explain logic of the hypotheses.

- Theory: Fund managers' response to climate risks can be used to build climate risks hedging portfolios.
- Logic: H1 shows that fund managers respond to climate risks and H2 furtherly proof that this behavior can be used to hedge climate risks.

5. Sample: comment on the appropriateness of the sample selection procedures.

- The use of multiple data sources, including the CRSP, Compustat and NOAA ensures a robust and comprehensive sample.

6. Comment on the appropriateness of variable definition and measurement.

- Different shocks, active changes and quantity betas are defined well in this article.

7. Comment on the appropriateness of the regress/predict model specification.

- The model controlled FE and clustered standard errors which make the results robust.

8. What difficulties arise in drawing inferences from the empirical work?

- The stability of the estimated betas may change over time.

9. Describe at least one publishable and feasible extension of this research.

- Study stock-level climate risk exposure.
- Understand the determinants of each industry's climate risk exposure.