A quantity-based approach to constructing climate risk hedge portfolios

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1. **What are the research questions?**
   - How to build portfolios that hedge risks from climate change with a quantity-based approach?
2. **Why are the research questions interesting?**
   - There has been rising demand for financial instruments that hedge these risks
     - Few instruments, like illiquid catastrophe bonds, directly hedge climate risks.
   - Investors can hedge climate risks using stocks or bonds exposed to such risks.
     - Investors must identify climate risk winners and losers
     - Existing methods require long data series, limiting their use for emerging risks.
   - The quantity-based approach uses investor trading data to select hedge portfolio stocks.
3. **What is the paper's contribution?**
   - Literature that studies the interaction between climate change and asset markets
     - Prior: focus on how climate risk is priced
     - Ext: provide a quantity-based approach to forming hedge portfolios
   - Literature on individuals' belief formation and action based on their personal experiences
     - Ext: Prove fund managers' consistent behavior under idiosyncratic and aggregate shocks.
   - Literature using quantity and holdings data in asset pricing
     - Ext: prove quantity info is useful for predicting price movements in response to aggregate shocks
4. **What hypotheses are tested in the paper? list them explicitly**
   - H1: The quantity-based portfolio will rise in price when aggregate climate risk materializes

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

   (b) **Do these hypotheses follow from theory or are they otherwise adequately developed?**
   - While idiosyncratic shocks only move quantities, the occurrence of aggregate climate shocks affect many investors.
   - Investors adjust industry demands similarly under both shocks.
   - Therefore, the hedge portfolio will rise in value when aggregate climate risks materialize.
5. **Sample: comment on the appropriateness of the sample selection procedures**
   - Why only heat events?low-temperature events?
   - The first shocks can lead to the second shocks.
6. **Dependent and independent variables: the appropriateness of variable definition and measurement**
   - Many kinds of climate hedge targets

7. **Regression/prediction model specification: the appropriateness of the regression/prediction model specification**

    - The portfolio performance evaluation methods are typical and appropriate.

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

    - The empirical work is rigorous

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

    - Using this approach for a specific type of risk event, we can determine its impact on industries.