Stock Return Forecasting Power of the Actuaries Climate Index

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The Actuaries Climate Index (ACI) is the newly released index by actuarial professional associations to measure climate risk. Composite with elements including temperature, precipitation, wind power, and sea level, it reflects extreme climate changes in Canada and the United States. In this paper, we investigate the forecasting power of the ACI to stock returns in relevant sectors. We find that less ACI time trends predict higher returns in agriculture-related portfolios and that the portfolio return is amplified for a more extended holding period. We also test the efficiency of the stock market with respect to the ACI. In light of the relative strength trading strategy, we invest in stocks with less climate risk and sell stocks with more climate risk. The outperformance of the "buy winner and sell loser" strategy in agriculture-related industries implies the inefficiency of the stock market. We find that the food and beverages sector contributes most to the outperformance. Our results shed a useful insight into how the stock market can be used to mitigate the adverse effect of the climate risk on the profitability of a company.