



Breckinridge
CAPITAL ADVISORS

SUSTAINABLE INVESTING | OCTOBER 20, 2025

MONITORING AGGREGATE EXPOSURE TO PHYSICAL CLIMATE RISKS

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Key Takeaways:

- As increasingly severe natural disasters threaten more regions of the U.S., Breckinridge is enhancing hurricane, flood, and wildfire risk monitoring to better inform municipal bond investors.
- The new capability responds to a changing insurance and federal emergency support landscape in addition to more frequent and damaging extreme weather events and the potential effect of these added risks on municipal bond values.
- The top-down overlay complements Breckinridge's bottom-up sustainable integration process, which supports security selection.



INTEGRATING CLIMATE INTO INVESTMENT DECISIONS

To further enhance management of physical climate risks, Breckinridge has developed a top-down climate risk assessment overlay that is applied to sustainable tax-efficient municipal strategies.

Our municipal bond research team is well-versed in the threats that physical climate risks present to municipal bond values.¹ Breckinridge was an early adopter of providing investors a more comprehensive view of risks by integrating sustainability factors, including physical climate risk, in bond analysis. More than a decade ago, Breckinridge launched innovative sustainable bond investment strategies that integrate physical climate risk assessments, among other factors, into research and security selection.

As the broader municipal market approaches a better understanding of the potential for physical climate risks to erode municipal bond values, we realize the need for better methods of addressing these risks at the portfolio-level. The ability to assess and address climate risks for each portfolio is one example of the benefits of separately managed accounts (SMAs). Individualized risk assessments for each account enable tailored portfolio management decisions—an approach that passive benchmarks, by their nature, cannot replicate. This level of granularity allows for targeted climate insights and risk management aligned to specific investment choices.

PORTFOLIO CLIMATE PERIL PROFILE: A CLOSER LOOK

After extensive research and development, we developed a proprietary calculation that identifies aggregate exposure to each of the following climate perils: hurricane, flood, and wildfire. Climate risk data are derived from third-party sources and are linked to each security. Data reflect regional variations in climate risk exposure, as well as the influence of time in climate risk models. Longer-dated bonds tend to be assigned higher climate risk levels. We calculate the market value-weighted average score of hurricane, flood, and wildfire risks for each sustainable municipal bond portfolio² and its benchmark index.

Aggregated scores for each physical climate peril are compared to the respective index values, which enables us to build portfolios that mirror the yield and credit quality of traditional indices, while targeting lower physical climate risk exposure. For strategies that invest primarily in a single state, often called specialty state portfolios, our team adjusts a portfolio's profile score for relevant hazards with outsized exposure in the particular state. Clients invested in our Sustainable Tax-Efficient Strategies receive this overlay in the interest of reducing the portfolio's exposure to each physical climate risk hazard.

Portfolio managers now have multi-dimensional views of portfolio-level risks based on physical climate risk data, geographical locations, and individual bond characteristics. Continued monitoring is designed to enable avoidance of concentration risk and inform buy or sell disciplines on specific securities.

1. Breckinridge further explored extreme weather's harmful effect on municipal bond credit spreads in the 2024 article [Heating Up: The Muni Market Inches Closer To Pricing Climate Risk](#).

2. As of September 30, 2025, the enhanced climate risk data protocol is applied to the Breckinridge sustainable tax-efficient strategies. Breckinridge sustainable strategies emphasize sustainable risk management by targeting issuers with above average and/or improving profiles as measured by environmental, social and governance performance.



THE EFFECT OF EXTREME WEATHER ON MUNICIPAL BOND VALUES

The data on negative price impacts for municipal bonds following natural disasters are mixed, and major price dislocations following natural disasters remain rare. Resilient municipal credit quality, strong federal and private insurance support historically, and strong demand for municipal bonds are all explanatory factors. Recently, however, the pricing dynamic appears poised to change (See [Heating Up: The Muni Market Inches Closer To Pricing Climate Risk](#)). A few recent studies have shown that catastrophic weather events and the attendant financial damage can affect municipal bond values, especially in certain regions or sectors.

A 2023 study found municipal bonds prices fall following natural disasters, which shows investors recognize the increased costs extreme weather events cause.³ An October 2024 analysis found that school district bond spreads widen as future wildfire exposures increase, particularly in the western U.S., which suggests that investors are beginning to account for anticipated physical climate risks.⁴

In 2025, following Southern California wildfires in January, S&P Global downgraded the credit quality of a major municipal bond issuer's outstanding debt. While the rating agency attributed the downgrade to the recent wildfire damage and potential litigation associated with the wildfire, S&P Global acknowledged that future climate threats also were factors. Credit quality downgrades typically lower bond prices,⁵ and spreads widened substantially on the issuer's bonds in the secondary market.

BRECKINRIDGE BASE CASE: CLIMATE RISKS COULD INCREASINGLY INFLUENCE VALUATIONS

For over a decade, we have incorporated security-level sustainability risk across all portfolios; however, we believe the growing prevalence of price reactions to such risks suggests that clients choosing sustainable strategies may benefit from also evaluating their portfolio's overall exposure.

Breckinridge's aggregate physical climate hazard scoring is a recent illustration of how our independence encourages ongoing reinvestment in our technology to advance industry practices and continue investment leadership. As part of this evolving approach, we aim to continually enhance our portfolio management tool, while seeking to remain responsive to new insights and changing market dynamics. This reflects our commitment to innovation and our readiness to adapt technology as data quality improves and as our understanding deepens.

3. ["Natural Disasters and Municipal Bonds,"](#) by Jun Kyung Auh, Jaewon Choi, Tatyana Deryugina, and Tim Park, May 2023. The study found that, on average, returns fell by 0.31 percent, translating into investor losses of nearly \$10 billion across a sample of more than 2,000 extreme weather events occurring from 2005–2018. The severity of the disaster, the source of bond revenue, and the presence of federal aid all influenced the magnitude of the effects.
4. ["Pricing Climate Risks: Evidence from Wildfires and Municipal Bonds,"](#) by Woongchan Jeon, Lint Barrage, and Kieran James Walsh, October 2024. The analysis combined high-resolution meteorological predictions and land use pattern maps with detailed U.S. municipal bond data to find that municipalities facing increased future wildfire risk are already having to pay higher school district bond borrowing costs as a result. A one standard deviation increase in future wildfire exposure was associated with a widening of 23-basis point in school district bond spreads.
5. Following widespread damage caused by wildfires in January 2025, S&P Global Inc. downgraded the long-term and underlying ratings on outstanding Los Angeles Department of Water and Power revenue bonds by two notches to A from AA- and placed the ratings on CreditWatch with negative implications.



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#BCAI-10152025-u5inhcmcy (10/20/2025)

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When considering sustainability factors, Breckinridge's investment team will include those factors that they believe are material. However, the investment team may conclude that other attributes outweigh these considerations when making investment decisions. Breckinridge can change its sustainability analysis methodology at any time.

Breckinridge's sustainability analysis is based on third party data and Breckinridge analysts' internal analysis. Analysts will review a variety of sources such as corporate sustainability reports, data subscriptions, and research reports to obtain available metrics for internally developed frameworks. Qualitative information is obtained from company reports, engagement discussion with corporate management teams, among others.

Breckinridge believes the data provided by unaffiliated third parties, including rating agencies, to be reliable but investors should conduct their own independent verification prior to use.

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