

# Extreme weather influences mortgage payments, study finds

January 16 2024

---



Credit: Pixabay/CC0 Public Domain

When cyclones and floods hit populated areas, people's ability to pay their mortgage differs depending on the type and intensity of the extreme weather, research suggests.

The more powerful the cyclone, the greater the chance that borrowers

will miss or delay [mortgage](#) payments, the study found.

Researchers found that the likelihood of borrowers defaulting on payments or being discouraged from paying off a mortgage early can also increase with heavy rain—particularly in flood-prone areas such as along coastlines.

As the effects of climate change are becoming more extreme and frequent, the ability to factor in such risks into mortgage calculations is of increasing importance to major financial institutions and borrowers, researchers say.

The team at the University of Edinburgh used data from almost 70,000 mortgages and more than 3.5 million single payments to model the impact of heavy rains and [tropical cyclones](#) on the probability of mortgage risk in Florida in the United States.

The study combined details about mortgage characteristics and performance over time with datasets on [cyclones](#) and intense rainfalls to see if it could help lenders predict whether loan payments will be paid and whether a loan will be paid off.

The intensity of the tropical cyclone had a statistically significant impact on the risk of a borrower defaulting on their payments.

The likelihood of defaulting was more than double for a hurricane of category three or more compared with category two.

They also found [heavy rains](#) in areas where flooding was common decreased the likelihood that borrowers would repay their mortgages early. They found no significant effect of tropical cyclones on borrowers' willingness to prepay their mortgages.

Both scenarios have negative consequences for lenders and borrowers. Defaulting damages the credit scores of borrowers, while early repayment affects the cash flows expected to be received by lenders, the researchers say.

The findings demonstrate that the inclusion of weather-related variables leads to more accurate default and prepayment predictions.

Professor Raffaella Calabrese, of the University of Edinburgh Business School, said, "The new credit scoring models we developed for the study showed it is possible to significantly improve the predictive accuracy of default and prepayments on mortgages when we include weather-related risks. Our results suggest that [extreme weather](#) leads to substantial changes in risk, and against this background, it seems necessary to systematically account for this in credit risk assessment."

The research is [published](#) in the *European Journal of Operational Research*.

**More information:** Raffaella Calabrese et al, Impacts of extreme weather events on mortgage risks and their evolution under climate change: A case study on Florida, *European Journal of Operational Research* (2023). [DOI: 10.1016/j.ejor.2023.11.022](https://doi.org/10.1016/j.ejor.2023.11.022)

Provided by University of Edinburgh

Citation: Extreme weather influences mortgage payments, study finds (2024, January 16) retrieved 28 April 2024 from <https://phys.org/news/2024-01-extreme-weather-mortgage-payments.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private

study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.