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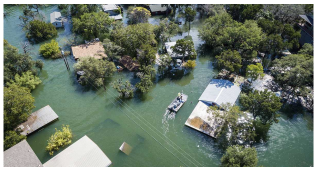

Finding Ways to Weather Climate Risk in US Housing

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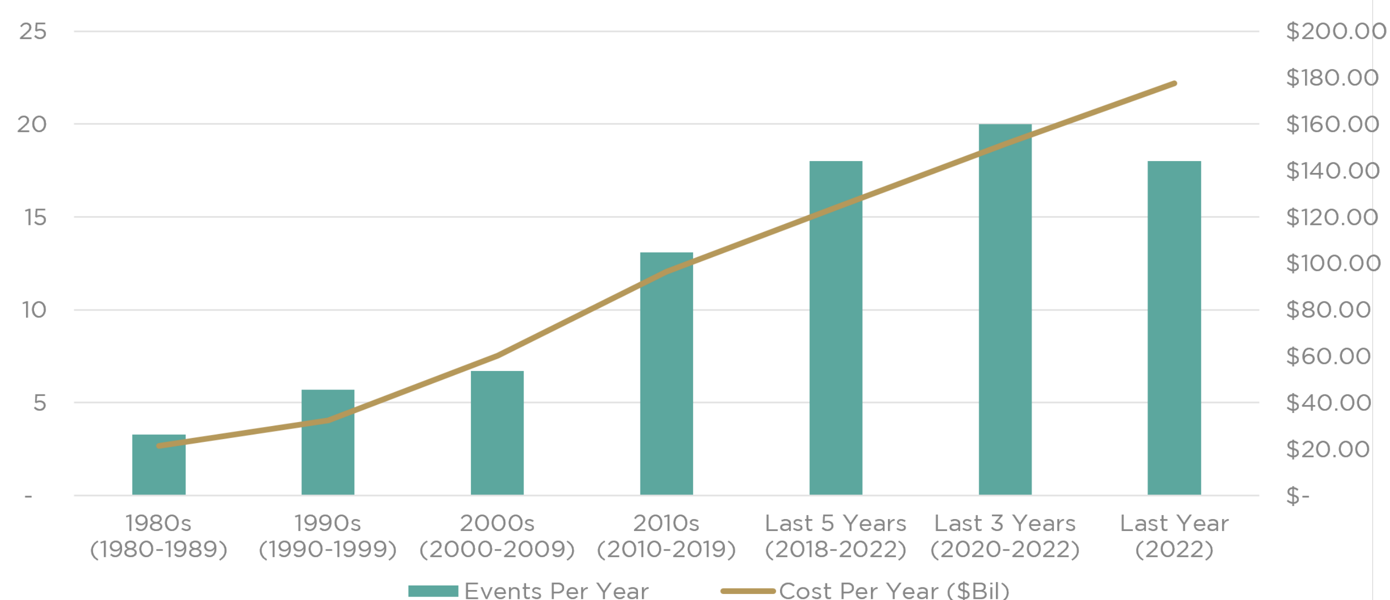
There has been no shortage of natural disasters in the US this year, with Hurricane Idalia and the Maui wildfires the latest grim reminders of the escalating costs of severe weather and climate-related events. According to data from the National Centers for Environmental Information (NCEI), the average number of severe events per year has increased over time, as have the financial and human costs. So far this year, there have been 23 confirmed weather-related disasters with losses exceeding $1 billion each in the US, and a cumulative human death toll of 253, based on information currently reported. These numbers were tabulated as of September 11, and do not include the cost impact of Hurricane Idalia, which is still being assessed. By comparison, the annual average for 1980-present is 8.4 events, and the most recent five years (2018-2022) is 18 events. It is evident that the rate of severe weather events is increasing (see Exhibit 1).[1]

1 **Progression of Severe Weather Events and Costs over Time**
Events per year (left), Cost per year in $Bil (right), As of 9/11/2023



Source: NOAA National Centers for Environmental Information (NCEI) U.S. Billion-Dollar Weather and Climate Disasters (2023)

The Challenges of Assessing Risk

The proliferation of these events has put residential properties and their inhabitants at ever-increasing risk of

exposure to a natural disaster and the financial impact of recovery. The probability and cost of physical risk are compounded by the potential exposure to transition risk, which are risks that may result from the transition to a lower-carbon economy, such as compliance with new regulatory requirements, shifts to newer or more efficient technologies, changes in consumer perceptions of property values related to the shift to a greener economy, etc. This combination of risks, which are often reviewed together, poses a significant threat to the housing market, homeowners, and investors. As a team, we evaluate physical and transition risks from a top-down macro level, although managing exposure to them in a portfolio of residential mortgage-backed securities (RMBS) is especially challenging.

Loan-level locational data is limited, partly due to concerns about borrower privacy. Information made available to investors at the time of a bond's issuance becomes stale as the collateral pools age and are paid down over time. The mortgage loans supporting RMBS tend to reflect overall mortgage loan activity, causing collateral pools to be concentrated in the same major markets where there is greater home purchase and mortgage loan activity. These tend to be in highly populated areas of California, Florida, and Texas, which are particularly exposed to physical climate risk via severe weather events.

One way to mitigate overexposure to these areas is by favoring agency MBS and credit risk transfer (CRT) bonds issued by the Federal National Mortgage Association ("Fannie Mae") and Federal Home Loan Mortgage Corporation ("Freddie Mac"). While concentrated in those large markets noted above, the collateral pools of these government-sponsored enterprises (GSEs) tend to be more geographically diversified than those of private-label issuers.

How GSEs Mitigate Risk in Their Mortgage Portfolios

As entities under conservatorship of the US government, Fannie Mae and Freddie Mac must meet various requirements set by their regulator, the Federal Housing Finance Agency (FHFA). In keeping with those guidelines, the GSEs require all homes underlying single-family mortgages in their portfolios to have homeowners' insurance coverage throughout the life of the loan. Additional hazard insurance is required for properties located in areas prone to events such as floods and earthquakes, based on a risk assessment of these factors. Similar requirements are in place to insure properties securing the multifamily loans they purchase.

Mortgage sellers are required to determine whether homes have the necessary insurance coverage at the time the loan is sold to a GSE, and the mortgage servicers must confirm that the proper insurance on these homes is maintained throughout the life of the loan in the amount that complies with federal requirements. If a property is in a flood hazard area and the borrower fails to obtain and maintain required flood insurance, then servicers must directly place such coverage.

The GSEs review insurance compliance prior to loan purchase, post purchase, and prior to securitization, and they require the servicers to report details of insurance compliance annually. Property surveys, virtual maps, flood models, and environmental and property condition reports are utilized to identify properties that are potentially at higher risk for natural disasters related to flooding and earthquakes.[2,3]

The FHFA also requires each entity to ensure the proper governance structure is in place to prioritize the effects of climate change throughout its decision making.[4] As a result, each GSE has formed a dedicated team to quantify its climate risk exposure, address data gaps, advance climate risk research initiatives, and incorporate climate risk into their business processes and practices.[2,3]

How GSEs Support the Adoption of Climate Risk Mitigation within the Industry

Given their leadership role in providing liquidity, stability, and affordability to the US housing market, the GSEs

are in a unique position to help public and private stakeholders address climate-related property risks. Both entities have been taking initiatives to help increase awareness and promote climate change resiliency in the nation's housing stock. They are collaborating with industry partners to strengthen building resiliency standards, help ensure that climate risks are considered during construction, and share best practices across communities and the housing industry. For example, Fannie Mae is partnering with the Insurance Institute for Business and Home Safety to highlight existing and emerging building standards and coordinate the work of builders and consumers with groups that want to support resilient housing.

Fannie Mae also is working with the National Institute of Building Sciences (NIBS) to develop Resilience Incentivization Roadmap 2.0. The goal of this mitigation plan is "to identify pathways to work with lenders to explore financial products that support resilient buildings, help developers properly evaluate risk and recognize values of resilient buildings and lower the upfront cost, collaborate with insurers to promote programs that reward safer structures, and support communities to develop layered mitigation investment packages." [5,6]

Freddie Mac is contributing research on public and private programs that can improve the climate resiliency of affordable housing. One of its recently published reports examines how climate resiliency factors into the federal Low-Income Housing Tax Credit (LIHTC) program. This program offers federal tax credits, which can be sold to obtain financing for eligible affordable housing projects in the multifamily sector. The federal government awards a limited number of these tax credits annually to each state based on its population, making them highly sought after. Eligibility is based on a set of federal requirements and each state's Qualified Allocation Plan (QAP), which adds further eligibility requirements and serves as a ranking system for allocating each state's allotment. These state QAPs can influence the development of affordable housing, and many have adopted various provisions for hazard resistance and/or recovery plans relating to water conservation, wildfire, high winds, and flooding. Freddie Mac has sorted through the details of these provisions for all 50 states and Washington, DC, comparing and contrasting each, to shed more light on these measures and facilitate an assessment of which are most effective. [7]

Conclusion

At Brandywine Global, we will continue to monitor how the GSEs address weather-related risks and how the rest of the industry responds to their leadership in this area. Ultimately, we hope innovation in materials, construction, technology, and financing will create new alternatives for homeowners and offer better transparency and risk management for investors, leading to better outcomes for everyone.

Citations:

[1] NOAA National Centers for Environmental Information (NCEI) U.S. Billion-Dollar Weather and Climate Disasters (2023). https://www.ncei.noaa.gov/access/billions/, DOI: 10.25921/stkw-7w73

[2] Freddie Mac, Sustainability Accounting Standards Board (SASB) Report 2021/2020, pp. 12-14, p. 32 https://www.freddiemac.com/about/pdf/Freddie_Mac_SASB_2021_Report.pdf

[3] Fannie Mae, Environmental, Social, and Governance Report 2022, pp. 32-38, pp. 41-44 https://www.fanniemae.com/esg-report

[4] FHFA, 2022 Scorecard for Fannie Mae, Freddie Mac, and Common Securitization Solutions, November 2021, p. 4 https://www.fhfa.gov/AboutUs/Reports/ReportDocuments/2022-Scorecard.pdf

[5] Fannie Mae Perspectives, "Fannie Mae's Focus on Climate," Tim Judge, April, 21, 2023 https://www.fanniemae.com/research-and-insights/perspectives/climate-focus

[6] "NIBS Joins with Fannie Mae to Develop Roadmap on Mitigation Investment," Christine Cube, May 11, 2022 https://www.nibs.org/news/nibs-joins-fannie-mae-develop-roadmap-mitigation-investment

[7] Freddie Mac Multifamily, Climate Resiliency Incentives in LIHTC Qualified Allocation Plans, July 2022, p. https://mf.freddiemac.com/docs/2022-DTS-climate-resiliency-report.pdf

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