

SECTION 7

Climate-Related Financial Risk

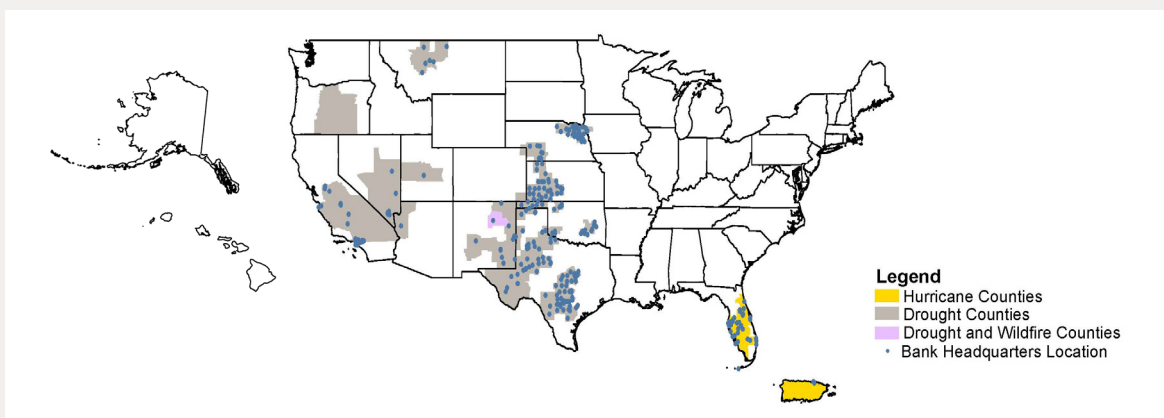
- Increased frequency and severity of severe weather and climate events present challenges and emerging risks to the banking industry.¹²⁹
- In 2022, severe weather and climate events included three hurricanes, an extensive wildfire, and a prolonged drought in the West. Estimated damages from these events were among the most costly since reporting began.¹³⁰
- The FDIC is expanding efforts to better understand climate-related financial risk in a thoughtful and measured approach that emphasizes collaboration with other supervisors and industry.
- The FDIC will continue to encourage financial institutions to consider climate-related financial risk in a manner that allows banks to prudently meet the financial services needs of their communities.

Severe weather and climate events in 2022 exposed banks to increased physical risk.

- Eighteen severe weather and climate events (over \$1 billion in estimated damages) occurred in the United States in 2022, including three hurricanes, wildfires, and a major drought.
- The counties affected by those hurricanes, drought, and wildfires were home to 353 bank headquarters and 7,543 bank branches.
- Of the 353 institutions affected by the severe weather and climate events in 2022, 309 (87.5 percent) were headquarters of community banks and 1,596 (21 percent) were community bank branches.

Regional Exposure to 2022 Severe Weather and Climate Events

Dots on the map represent the 353 banks headquartered in counties affected by severe hurricanes, wildfires, and drought in 2022.



Sources: NOAA National Centers for Environmental Information, Federal Emergency Management Agency (FEMA), National Interagency Fire Center, U.S. Drought Monitor, and FDIC.

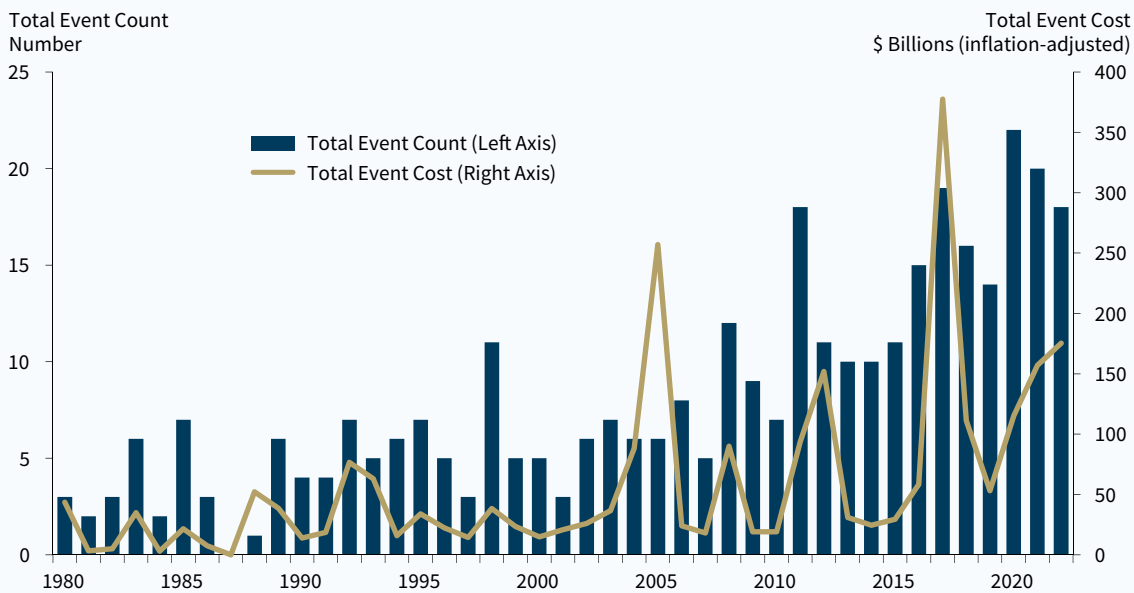
Note: Hurricane counties are FEMA disaster-declared counties eligible for individual assistance for Hurricanes Ian, Nicole, and Fiona. Wildfire counties are counties within the perimeter of the Hermits Peak/Calf Canyon Fire in New Mexico, the largest and most destructive wildfire in 2022 in the contiguous United States. All of the counties that were affected by the wildfire also experienced “exceptional drought” conditions in 2022. Drought counties are counties that experienced 12 weeks of exceptional drought during 2022. Bank structure data as of first quarter 2023.

¹²⁹ Banks are likely to be affected by both the physical risks and transition risks associated with climate change, collectively referred to as “climate-related financial risk.” The *Risk Review* is a retrospective review of risks in 2022, and this section focuses solely on physical risk from severe climate and weather events that occurred in 2022 through early 2023.

¹³⁰ “Severe” weather and climate events in this report are those that caused at least \$1 billion in damages. See NOAA, National Centers for Environmental Information, [Billion-Dollar Weather and Climate Disasters](#) (2023). Estimates are as of June 8, 2023, and are adjusted for inflation using the 2023 Consumer Price Index.

CHART 45

Estimated Damages From United States Severe Climate and Weather-Related Events in 2022 Were Among the Most Costly



Source: NOAA-NCEI.

Note: Natural disasters include droughts, floods, freezings, severe storms, tropical cyclones, wildfires, and winter storms that caused at least \$1 billion in damages. Data are annual figures from 1980 through 2022.

Increased frequency and severity of climate and weather events present challenges and emerging risks to the banking industry. Historically, the financial industry and banks in particular have effectively managed the effects of severe weather events, such as hurricanes, wildfires, and drought. However, changes in climate conditions, including increasing frequency and intensity of severe climate and weather events and other natural disasters, will likely pose additional risks to the financial system and challenges to individual banks.

The financial system, including banks, will likely be affected by both physical and transition risk associated with climate change. Together, these risks are referred to as climate-related financial risks. Physical risks generally refer to the financial losses resulting from harm to people and property from climate-related events, such as hurricanes, wildfires, and drought, and longer-term climate shifts such as sea level rise. Transition risks generally refer to financial risks to

certain institutions or industry sectors that arise over time from the process of adjusting toward a lower-carbon economy, which may be prompted by changes in climate and environmental policy, technology, or market sentiment.¹³¹ The *Risk Review* is a retrospective review of risks in 2022, and this section focuses solely on physical risk from severe climate and weather events that occurred last year. As such, transition risks, which are prospective and may take longer to manifest, are not included in this retrospective discussion.

The severe climate and weather events in 2022 were among the most costly since reporting began.

The frequency and estimated cost of severe climate and weather events on an inflation-adjusted basis have steadily increased since the National Oceanic and Atmospheric Administration (NOAA) started tracking these events in 1980 (Chart 45). Since 1980, there have been 357 severe climate and weather events, defined as events with estimated inflation-adjusted

¹³¹ Martin J. Gruenberg, “[The Financial Risks of Climate Change](#),” American Bankers Association Annual Convention, October 3, 2022.

direct damages of \$1 billion or more.¹³² These events are estimated to have cumulatively cost more than \$2.5 trillion. In 2022, NOAA reported 18 separate \$1 billion climate and weather events, slightly fewer than in the record years of 2020, when 22 events occurred, and 2021, when 20 events occurred. However, the \$175.2 billion in estimated damages to structures and business interruptions from the 2022 severe climate and weather events was higher than in each of the previous two years and was the third-highest amount since 2000 on an inflation-adjusted basis.

During the first five months of 2023, there were nine separate severe climate and weather events in the United States, resulting in estimated damages of \$23.7 billion. These included seven separate rounds of thunderstorms and tornadoes in the South and Central United States, a flooding event in California, and a winter storm in the Northeast. Comparatively, only 2017 and 2020 had a greater number of severe climate and weather events in the first five months of the year than 2023.

In 2022, three severe hurricanes struck the continental United States and Puerto Rico, causing more overall estimated damages than hurricanes in the 2021 season. Hurricanes Ian, Nicole, and Fiona caused an estimated \$117.6 billion in damages, an increase of 39 percent from the 2021 season. Estimated damages from the 2022 hurricanes were more costly than those reported in 2021 because two of the storms affected the highly populated and densely developed Florida coastline. Hurricane Ian in Florida was the most destructive of the 2022 hurricanes with \$114 billion in estimated damages and is estimated to be the third-costliest hurricane to hit the mainland United States to date. Shortly after Ian, Hurricane Nicole in Florida caused an estimated \$1 billion in damages. Nicole was relatively mild in strength but covered a large geographic area, including several areas still recovering from Hurricane Ian, compounding the existing damage and the recovery timeline in those

areas. Hurricane Fiona in Puerto Rico disrupted power to the entire island, severely damaging its power grid, which remained in a fragile state after Hurricane Maria in 2017 caused the largest blackout in U.S. history. Fiona is estimated to have caused \$2.6 billion in damages and is expected to weigh on the island's ongoing recovery from long-running fiscal issues.

The 2022 wildfire season in the western United States caused an estimated \$3.2 billion in damages, making it less costly than the previous two seasons.

Wildfires are historically common in the western United States, but they have become more severe in recent years. The most destructive wildfire of the 2022 season occurred in northern New Mexico. The fire destroyed more than 900 structures and burned more than 340,000 acres, making it the largest fire by acres burned in New Mexico's history. The burn scar left by the fire contributed to flooding that significantly affected residents in the area as well as the entire city of Las Vegas, New Mexico. The city's water supply continued to be threatened by debris and ash through early 2023 and could take years to fully resolve. The three western states highly susceptible to wildfires—California, Oregon, and Washington—all experienced a milder wildfire season. Despite having one of their warmest summers on record in 2022, well-timed precipitation kept fires from spreading and resulted in a lower economic impact.¹³³ California's wildfire season in particular was moderate compared to the 2021 and 2020 seasons, which rank as two of the most severe in the state's history.¹³⁴ Although the 2022 wildfire season was relatively mild compared to the past few years, ongoing drought in the West and hotter temperatures created conditions favorable for wildfire formation.¹³⁵

Excessive heat in 2022 exacerbated drought conditions and reduced agriculture production.

According to NOAA, 2022 ranked as the third-hottest summer on record. Higher temperatures and persistent drought conditions affected large portions

¹³² More than one dozen public and private sector data sources help capture NOAA's estimates for the direct costs (both insured and uninsured) of weather and climate events. These costs include physical damage to residential, commercial, and municipal buildings; material assets (content) within buildings; time element losses such as business interruption or loss of living quarters; damage to vehicles and boats; public assets including roads, bridges, levees; electrical infrastructure and offshore energy platforms; agricultural assets including crops, livestock, and commercial timber; and wildfire suppression costs. See NOAA's "[Billion Dollar Weather and Climate Disasters FAQ](#)."

¹³³ Jim Carlton, "[Wildfire Season in U.S. West Ends With Fewer Blazes, Less Damage](#)," Wall Street Journal, November 17, 2022.

¹³⁴ Office of Governor Gavin Newsom, "[Governor Newsom and Cal Fire Announce the End of Peak Wildfire Season for Most of California](#)," news release, November 17, 2022.

¹³⁵ The number of wildfires and acres burned during the 2022 western wildfire season were higher than the ten-year average. "Mild" refers to the resulting economic impact of these fires, which was considerably lower in 2022 than in the previous two seasons.

of the United States. Nearly half (49.6 percent) of the continental United States reported some degree of drought late last year, the highest percentage since the Drought Monitor was established 20 years ago. In five states—New Mexico, Texas, Oregon, Nevada, and California—the worst drought conditions affected almost 30 percent of counties in each state.¹³⁶ Although this is down from nine states with more than 30 percent of counties in exceptional drought in 2021, the combination of drought severity and duration is causing increased losses for agricultural producers and a shortage of water supplies. For example, in Texas, cotton production in 2022 declined 60.3 percent from the prior year.¹³⁷ Further, the 2022 drought reduced the number of cattle produced in Texas, across the Central Plains, and in the western half of the United States.¹³⁸

Drought conditions have also reduced water supplies. Three successive years of drought in California have caused water allocations for agriculture to decline, forcing many of the state’s cattle producers to reduce their herds, rice producers to cut back on planting, and fruit growers to remove whole sections of orchards. Some reservoirs in the state reached critically low levels last year, but strong precipitation in late 2022 and early 2023 helped replenish some water levels. However, almost none of the storms reached the Colorado River basin, which supplies water to several western states and remained low at the start of 2023.

While insurance policies may cover some or all of the loss associated with many severe climate and weather events, policies may become more expensive or unavailable. Access to private insurance protection to cover losses for a particular geographic area or business activity, particularly residents and businesses in areas facing increasing severity and frequency of severe weather events, has begun to evolve and become less accessible.¹³⁹ In addition, while government support may provide assistance with costs associated with many severe weather events, it may not always fully cover losses. Overreliance on insurance and government support

may therefore present additional risks, as these types of assistance may not be able to compensate for losses to the same extent as they have in the past, which may affect the ability of smaller institutions to mitigate climate-related financial risk.

The FDIC is in the early stages of understanding and addressing financial risks posed by climate change and intends to expand efforts in a thoughtful and measured approach that emphasizes collaboration with other supervisors and industry. The FDIC is working with domestic and international financial regulatory counterparts to better understand and address climate-related financial risks. The FDIC is also working with banking industry stakeholders to maintain a meaningful dialogue on climate-related risks and to support institutions as they develop plans to identify, monitor, and manage these risks.

To enhance the understanding of climate-related financial risks, the FDIC in 2022 established an internal cross-disciplinary working group to assess the safety and soundness and financial stability considerations associated with climate-related financial risks and to develop broad understanding of climate-related financial risk in all of its forms. The FDIC is also coordinating with interagency peers and is participating on the Financial Stability Oversight Council’s Climate-Related Financial Risk Committee. Further, as climate change is a global issue, the FDIC joined the Network of Central Banks and Supervisors for Greening the Financial System to foster collaboration and share best practices for addressing climate-related financial risk globally.¹⁴⁰

The FDIC recognizes that risk management practices in this area are evolving and will continue to encourage banks to consider climate-related financial risk in a manner that allows them to prudently meet the financial services needs of their communities. As an initial step to promote a consistent understanding of effective management of this emerging risk, in March 2022 the FDIC issued

¹³⁶ The areas most affected by drought in 2022 were those with the worst drought conditions—what the U.S. Drought Monitor calls “exceptional”—for at least 12 weeks in 2022. See <https://droughtmonitor.unl.edu/>.

¹³⁷ U.S. Department of Agriculture, Cotton and Wool Outlook, June 2023 Table 10 Cotton Production Compared to June 2022 Table 10 Cotton Production.

¹³⁸ Elena Bruess, “[In Texas Drought, Hay Shortage Hits San Antonio-Area Ranchers](#),” San Antonio Express News, December 14, 2022.

¹³⁹ State Farm General Insurance Company, “[State Farm General Insurance Company: California New Business Update](#),” news release, May 26, 2023; California Department of Insurance, “[Insurance Commissioner Dave Jones Releases Report Addressing Fire Insurance Availability Issues](#),” news release, January 4, 2018; and California Department of Insurance, “[Wildfire Survivors Now Covered by New Insurance Protections](#),” news release, July 27, 2021.

¹⁴⁰ Gruenberg, “[The Financial Risks of Climate Change](#).”

a proposed Statement of Principles for Climate-Related Financial Risk Management for Large Financial Institutions. The principles provide a high-level framework for the safe and sound management of exposures to climate-related financial risk and are intended to support efforts by large financial institutions to focus on key aspects of climate-related financial risk management.¹⁴¹ The draft principles

are substantially similar to the principles issued by the Office of the Comptroller of the Currency (OCC) in December 2021 and the Federal Reserve Board in December 2022.¹⁴² After reviewing comments received on the proposed principles, the FDIC intends to coordinate with the OCC and Federal Reserve in issuing any final guidance.

¹⁴¹ Federal Deposit Insurance Corporation, “[FDIC Issues Request for Comment on Statement of Principles for Climate-Related Financial Risk Management for Large Financial Institutions](#),” news release, March 30, 2022.

¹⁴² Board of Governors of the Federal Reserve System, “[Federal Reserve Board Invites Public Comment on Proposed Principles Providing a High-Level Framework for the Safe and Sound Management of Exposures to Climate-Related Financial Risks for Large Banking Organizations](#),” news release, December 2, 2022. The news release states that the Board’s proposed principles are substantially similar to proposals issued by the FDIC and the OCC.