Industry Perspective

Regulatory View of Climate Peril on Banks and GSEs

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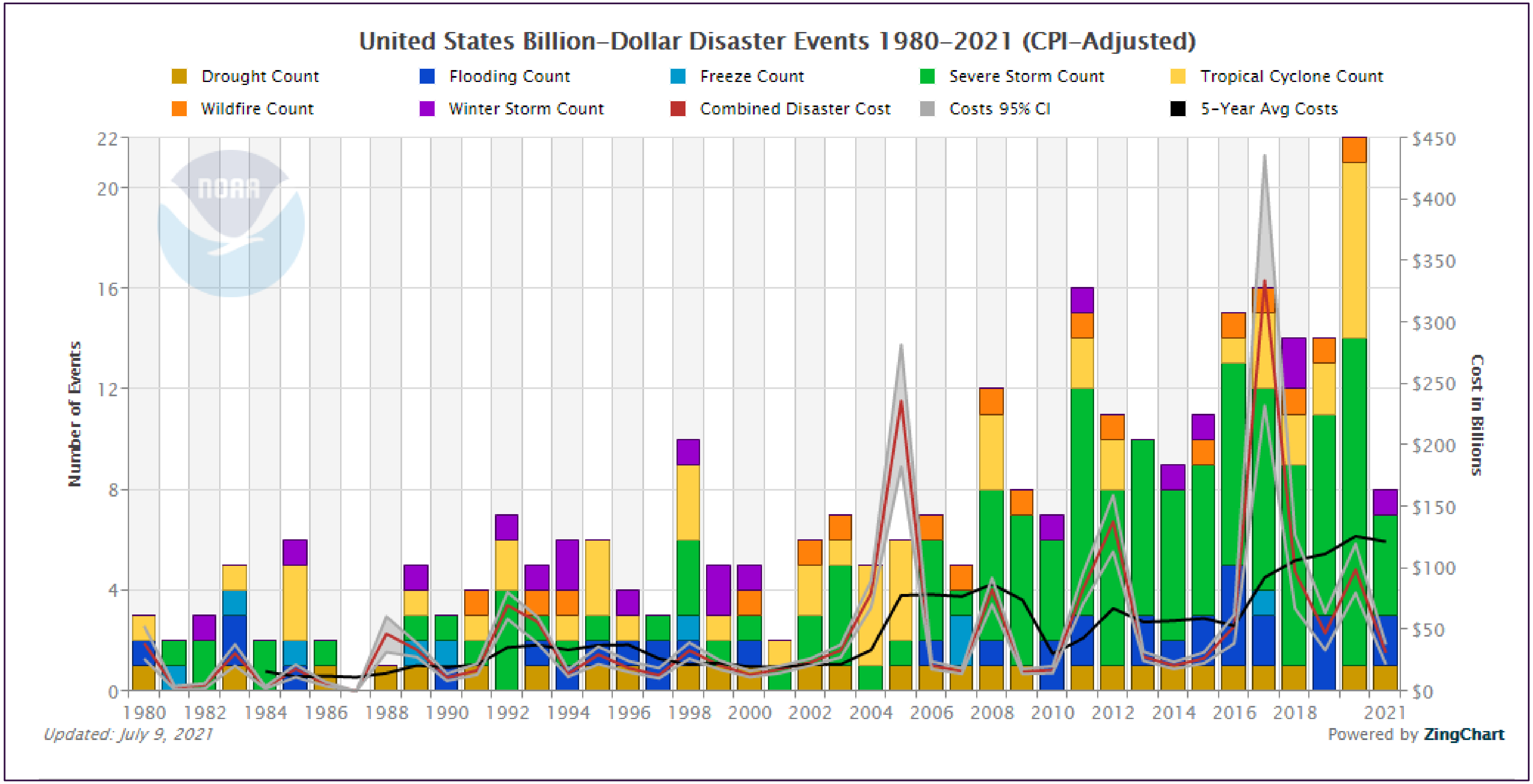
Industry perspective: Climate Peril

Climate Risk Escalating

- Climate disruption ranks among the top risk concerns in banking, particularly as frequency of severe disasters increases
- According to data from NOAA, billion-dollar-plus natural disasters are accelerating in the decades since 1980
- Since 1980 the US averages seven (7) billion-dollar-plus disasters annually, rising to an average of **15 per year since 2015**



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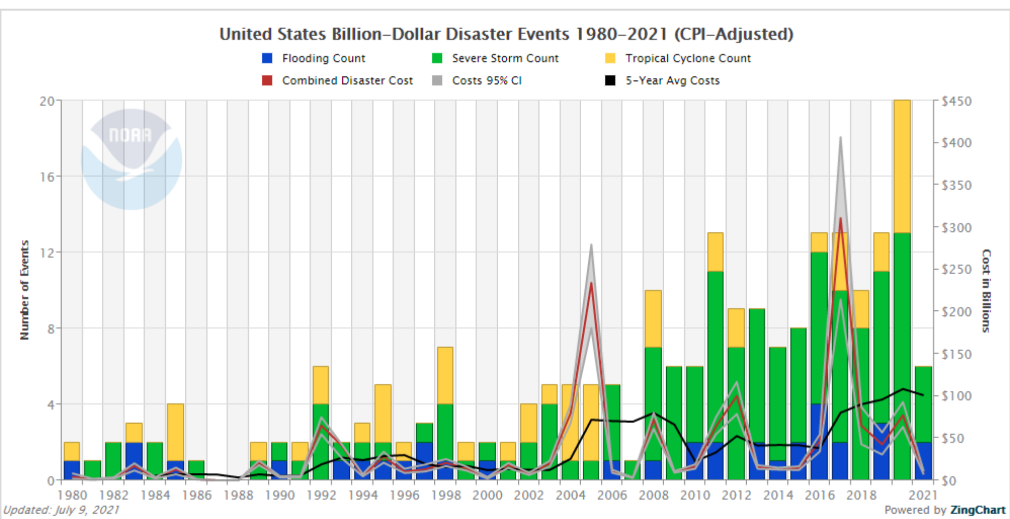
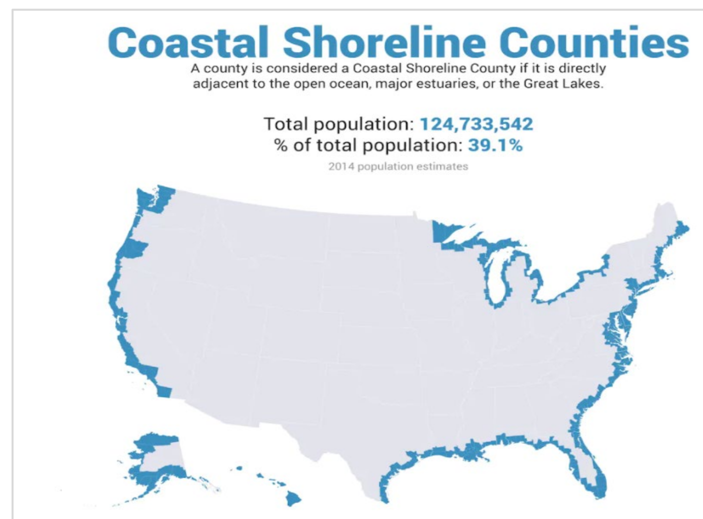
Key Risk Drivers: Flooding, Hurricanes, and Severe Stormweather

Risk Overview

- Billion-dollar flooding disasters were more frequent in the decade between 2010 and 2019 (18) than in the prior three decades from 1980 to 2009 combined (14)
- Coastal areas face multiple intersecting disasters; damage from flooding due to rainfall in billion-dollar cyclone events often exceeds that from wind damage alone
- An estimated 125 million Americans (39% of the population) live in coastal shoreline counties
- Ensuring adequate coverage on collateral is complicated because damage from flooding is typically not covered by typical homeowners’ insurance policies
- National Flood Insurance Program (NFIP) requires coverage for homes in flood-prone areas defined by FEMA; homes in other locales not subject to mandatory flood coverage





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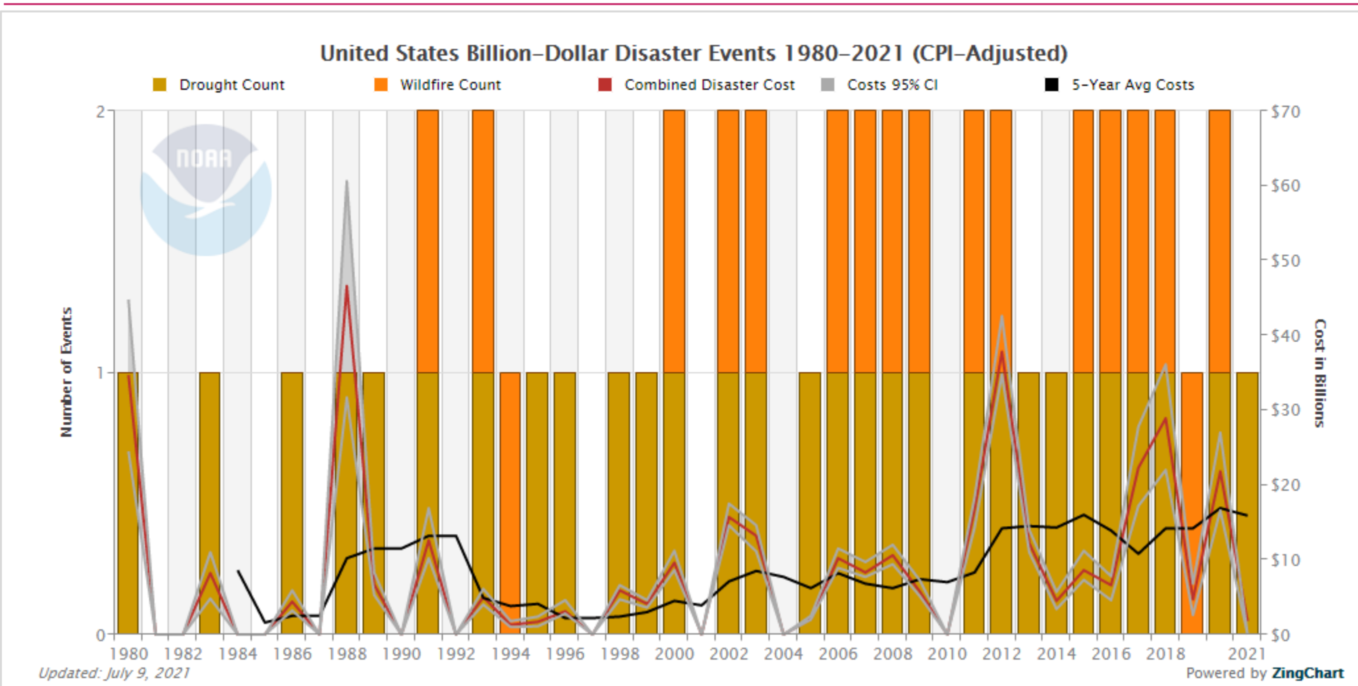
Key Risk Drivers: Wildfires and Drought

Risk Overview

- Billion-dollar wildfires occurred only three times from 1980-1999, and fifteen times since 2000
- Drought impacts are also increasing in both frequency and severity over the past four decades
- Rising global average temperatures and frequent droughts are generally considered to be contributing factors to the increasing frequency of severe wildfires
- Fire damage is typically covered by homeowners' policies, but in some areas carve-outs apply and supplemental wildfire insurance is required
- California, which has been affected by 16 of the last 18 billion-dollar wildfires, has established a program to provide fire insurance to borrowers in high-risk properties



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Disaster Playbook and Risk Outlook

Current Approach

- Ensuring loans are originated with necessary insurance coverage
- Ongoing monitoring of portfolio loans to ensure continuity of coverage
- Playbook for navigating a severe weather event:
    - Dedicated servicing resources to assisting affected borrowers, including short-term assistance programs (e.g., payment forbearance if income is disrupted)
    - Exposure assessment for affected areas, including flood insurance adequacy analysis and survey of property equity positions to determine likelihood of sustaining losses
    - Establishment of incremental loss reserves to offset expected weather-related losses

Future Risks + Considerations

- Drought, wildfires, and other severe climate events may accelerate as climate change continues, negatively affecting viability of living in heavily impacted areas
- The accelerating rate of severe weather events and unpredictable nature of natural disasters will necessitate the incorporation of new data sources and models into financial forecasts
- Upward trajectory of home prices across the US may drive less affluent homebuyers into older, lower-condition home and neighborhoods which in turn may have increased exposure to climate impacts, both from extreme weather and long-term climate shifts (e.g., rising sea levels)
- Institutions may consider geography-specific collateral and/or insurance requirements in regions where escalated levels of climate risk are observed
- Prospective Stress Testing and Scenario Analysis exercises need to incorporate climate data and/or models to ensure risks are properly captured

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Regulatory Actions and Uncertainty

Recent Regulatory and Legislative Action

- National Flood Insurance Program – FEMA Risk Rating 2.0
  - Updated risk-based pricing approach improves equity by ensuring appropriateness of rates given risk and property profile
- Residential solar power mandates – California leading the way, with few other states following
  - Expected to increase cost of residential construction by $8-12k for a new home
- State-level clean energy mandates – 15 states or territories have enacted executive actions and/or legislation to move towards 100% renewable/green energy
- Biden E.O. directing government agencies to take actions to combat climate change impacts
- Biden administration and congressional Democrats have made commitments to act on climate change; legislative agenda is underway but most key measures stalled in Senate

Outlook, Challenges, and Uncertainty

- Uncertainty is a key concern amidst the industry's nascent efforts to capture climate risk in broader risk management frameworks
- Institutions expect enhanced regulatory requirements, including incorporation of climate risk into stress testing or loss reserving processes and enhanced climate impact disclosures
- Financial institutions are likely to undergo increasing scrutiny on their approach to financial climate risk management and calls to action to mitigate the impacts of climate change more broadly
- Comparative analysis between institutions and industries is complicated by numerous factors:
  - Lack of common definitions and standards
  - Limited historical data
  - No standardized supervisory framework

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