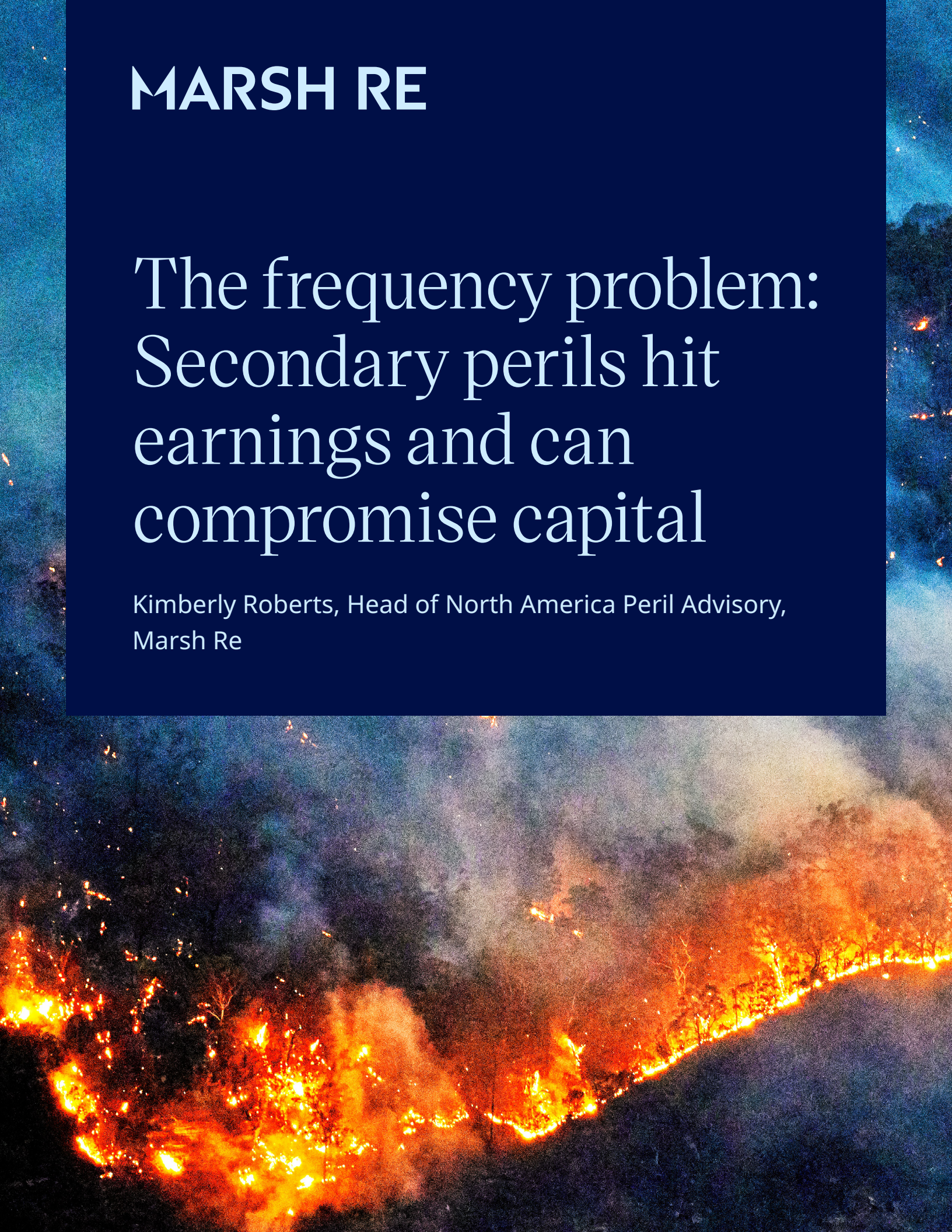
MARSH RE

The frequency problem: Secondary perils hit earnings and can compromise capital

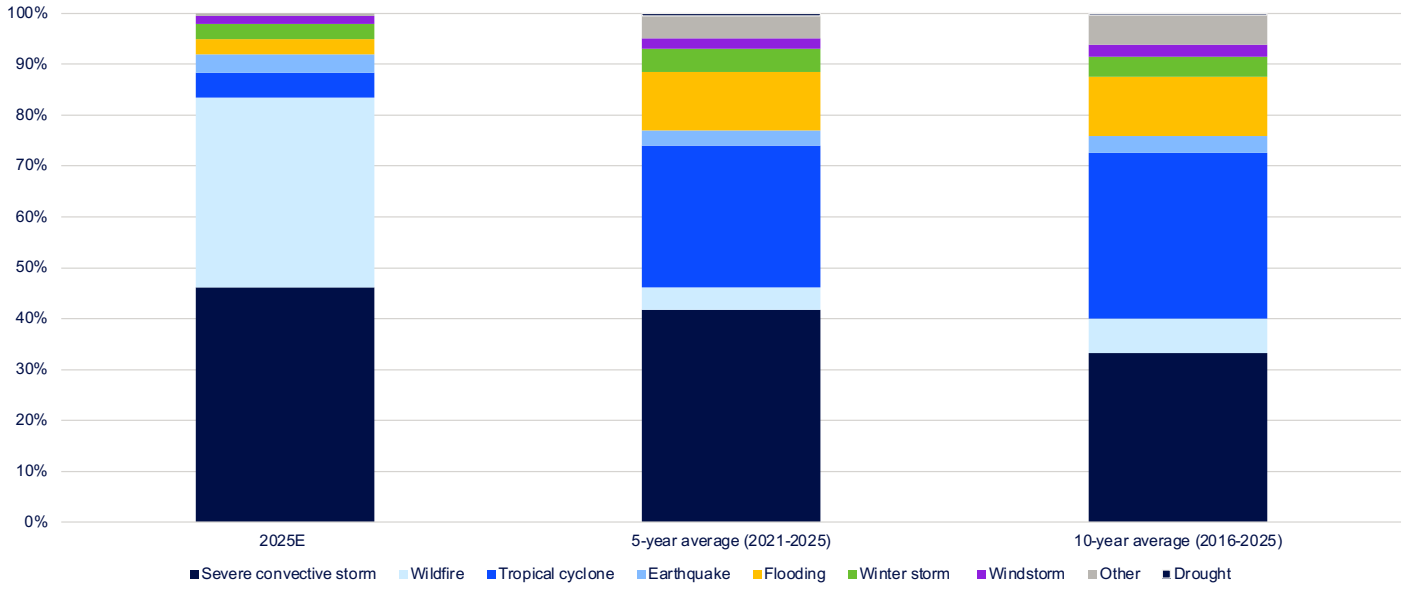
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Secondary perils: the loss record has outgrown the label

For years, “secondary perils” referred to hazards considered less consequential than hurricane and earthquake: hail, wildfire, winter storm, and inland flood. The loss record no longer supports that label. These perils now drive the majority of North American insured catastrophe losses in most years.

Figure 1: Large loss activity by peril



Source: Marsh Re. These represent percentage contribution of a single peril to total global losses.

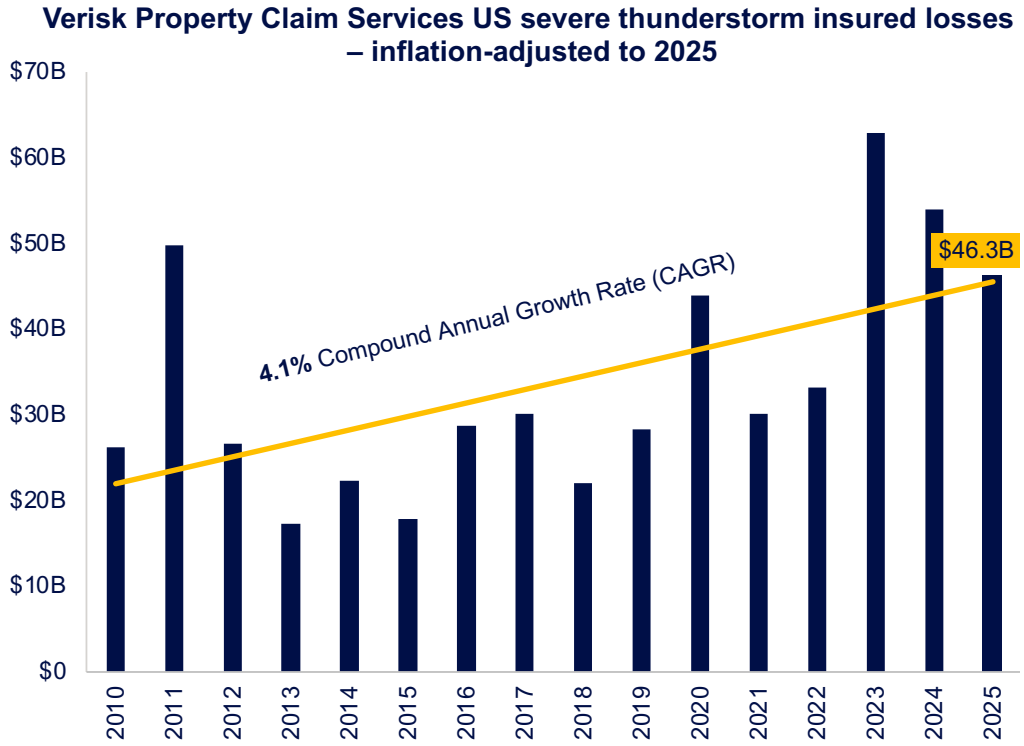
It is tempting to conclude that these have become the new peak perils. For most diversified portfolios, they have not: A major hurricane or earthquake still drives the 1-in-100 and 1-in-250 outcomes that set capital. But that is less true than it was. A single urban wildfire can now produce a tail event for a concentrated portfolio, a bad convective season can erode surplus through a seasonal aggregation of losses, and for a regional carrier in the central Plains, severe convective storm is the tail.

What distinguishes these perils is their physics: They are frequent, localized, and highly sensitive to what they strike. That means they hit earnings nearly every year, much of it below reinsurance retentions, and they increasingly reach capital as well. Understanding them takes a different lens than the one built for peak perils.

Severe convective storm: The hazard is only half the story

Severe convective storm (SCS) is the clearest case. US-insured SCS losses have exceeded US$30 billion per year since 2020, with four of those years exceeding US$40 billion. That run of losses reflects both the atmosphere and what sits beneath it.

Figure 2: US severe thunderstorm losses remain elevated, although 2026 is trailing behind the last several record years.



~$26B in insured losses through August 2026.

Source: Loss and event statistics based on Verisk PCS Database, trended by Marsh Re for inflation.

On the hazard side, the signal is real but harder to read than headlines suggest. Research points to more frequent storm-favorable environments in parts of the central and eastern US, and an eastward shift in tornado activity toward the Mississippi and Tennessee valleys. Long-term hail trends are harder to establish because the historical hail-reporting record is affected by changes in population, observation networks, and reporting practices.

Much of the loss trend is due to vulnerability. A hail-impact-resistant roof can largely withstand damage that would totally destroy an aging asphalt roof; however, much of the housing stock in hail country is aging. Replacement costs remain well above pre-2021 levels, and in some states, contractor solicitation and litigation push claims beyond what the storm itself caused. Exposure keeps growing across Texas, the Plains and the Front Range.

The encouraging part is that vulnerability is the lever we can actually move. Building-science research from the Insurance Institute for Business & Home Safety (IBHS) and others shows that roof construction materially changes hail and wind outcomes. Roof age and roof type are among the most valuable fields in the exposure data.

Vendor SCS models are essential tools, and the latest generation of updates reflects meaningful, rigorous scientific work. In Marsh Re testing, model loss estimates have increased substantially from one version to the next. When results move dramatically in a single release cycle, a model becomes hard to trust as a standalone answer. Every update needs validation against the hazard science and the carrier's own claims experience before it moves pricing, capital, or reinsurance decisions.

The science behind those models keeps getting better because academia and industry are in deep partnership.

Marsh Re's membership in the Center for Interdisciplinary Research on Convective Storms (CIRCS) brings atmospheric scientists and insurance practitioners together, so research on hail, tornadoes, and damaging wind targets the questions that drive loss: how often damaging hail occurs, the frequency and severity of derecho events, and how societal impacts play a role. That partnership will produce data and evidence to validate the models and inform future updates.

Wildfire: a weather-driven urban peril

Wildfire stopped being a rural, California-only peril some time ago. The most destructive recent fires share a meteorological signature: extreme downslope winds over critically dry fuels. The Marshall Fire in December 2021 ran through the suburbs of Denver, Colorado, with wind gusts nearing 100 mph, destroying more than 1,000 homes in an afternoon. The January 2025 Los Angeles fires followed two wet winters that grew abundant grass and brush, followed by an exceptionally dry autumn and strong Santa Ana winds. They produced the largest insured wildfire loss on record.

In both fires, once wind carried embers into neighborhoods, homes became the primary fuel source and ignited each other. Urban conflagration is where the hazard science is the most complex and where models have the least validated experience, so vendor results for the same portfolio can differ widely.

Wildfire risk is also where mitigation matters most, and on a larger neighborhood scale, not just that of a single home. Ember-resistant vents, noncombustible roofing, and a cleared five-foot zone around the structure measurably improve whether a home survives — but only if the homes around it hold, too. Ideally, there are also resilience efforts being made at the community level, such as fuels management and wildfire buffers.

Those attributes more accurately shape the view of risk than a base ZIP code designation. Yet most portfolios do not capture neighborhood-to-community-scale mitigation measures consistently, and what they do capture drifts as policies renew. Without that data, a model is guessing on exactly the variables that decide the loss.

Winter storm and flood: when infrastructure becomes the peril

Winter Storm Uri in 2021 was a weather event that became an infrastructure event. Texas power generation, gas, and water systems failed together during a prolonged Arctic cold snap, and losses spread across personal, commercial, and energy lines at a pace and scale not previously experienced. Models capture freeze well; they capture multi-day grid failure, and its claims cascade, far less well.

Flood risk is shifting, and for a simpler reason. A warmer atmosphere holds roughly 7% more moisture per degree Celsius, and extreme rainfall is becoming more common as a result. In 2024, Hurricane Helene's worst damage came from mountain-enhanced rainfall in western North Carolina, hundreds of miles from the coast, in counties where only about 2% of properties sit inside the Federal Emergency Management Agency's (FEMA's) mapped flood zones.

What this means for how we understand the risk

Frequent, localized perils raise different questions than rare, large ones. A 1-in-250 occurrence exceedance probability (OEP) says little about how often a carrier will fall short of their earnings targets. The questions that matter sit lower on the curve: What is the aggregate loss at the 1-in-5 and 1-in-10-year OEP levels? How volatile are losses from year to year? Does pricing reflect both modeled and experienced average annual loss?

Finding credible answers to these questions begins by understanding how today's climate departs from the historical record upon which a model was built and ascertaining which parts of a portfolio sit in the hail belt, Tornado Alley, the wildland-urban interface, or the reach of an Arctic outbreak. From there, the view of risk should blend vendor output with the carrier's own experience, weighted by an informed analysis of which models deserve more trust.

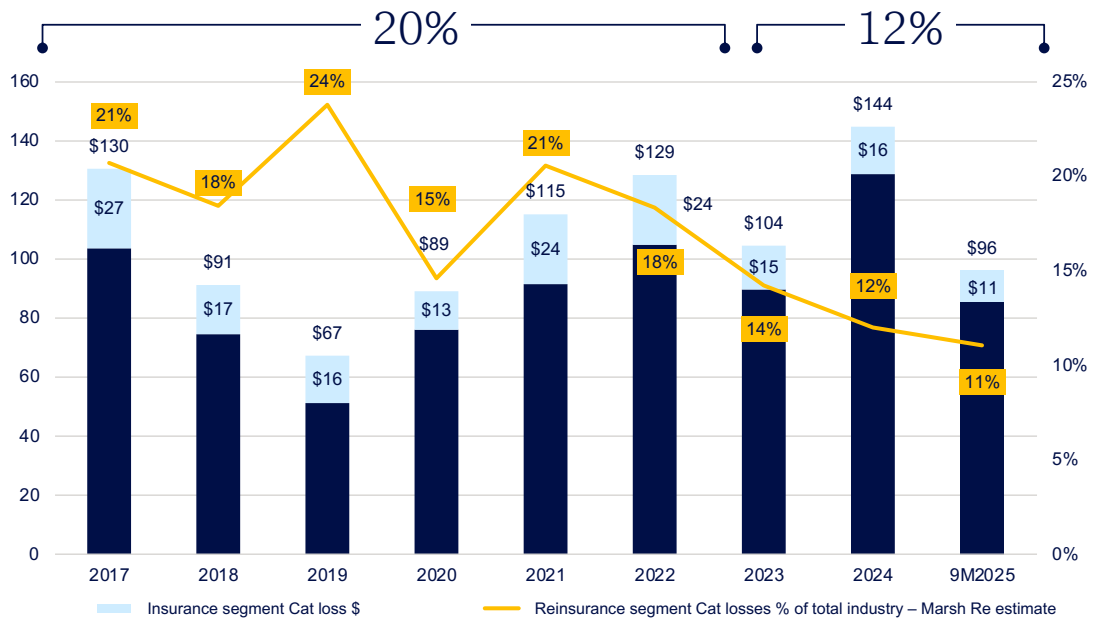
Where models are weakest, as with an urban conflagration, a multi-day grid failure, or a severe derecho event, deterministic scenarios fill the gap. They do not say how likely an event is, but they show what the book can absorb.

Roof age, construction, defensible space, and mitigation features must be captured and governed continuously, not cleaned up once before a reinsurance renewal. None of this analysis is helpful if the exposure data is out of date or inaccurate.

What this means for protection

The 2023 reset moved retentions up, and frequency perils now sit largely beneath them. That is a main reason why reinsurers' share of catastrophe losses has fallen in recent years. The losses did not go away, but instead moved onto cedents' net results.

Figure 3: Reinsurers' share of catastrophe losses has declined



Source: Company reports, Marsh Re calculations. Note: Reinsurer's share is based on reported cat losses for the reinsurance segment of select companies in the Marsh Re reinsurance composite and assumes the cohort represents 65% of the industry.

Most programs are still designed around a single large occurrence, yet a season of 15 midsize hail events can do more damage to an income statement than one hurricane that reaches the first catastrophe reinsurance layer. Annual aggregate covers, second-event and low-attaching layers, and catastrophe bonds with aggregate triggers exist to address that pattern. With reinsurers largely holding higher attachment levels, aggregate protection in a softening market is now the most practical way to bring some retained loss back into the program, though appetite remains very selective.

Neither aggregate protection nor mitigation credit is available without credible data: Reinsurers write aggregate covers only where they trust the cedent's view of risk, and mitigation counts only when it is documented. That is why hazard expertise, exposure quality, and program design belong in the same conversation.

Secondary in the tail, primary in the income statement

The word “secondary” was always about where these perils sat in the tail. For many portfolios, that still broadly holds. But in the income statement, it stopped being true years ago, and in the tail, it is eroding, one conflagration and one derecho at a time.

The carriers that outperform over the next cycle will treat these perils with the same rigor they apply to capital. That means understanding the hazard as it behaves now, not as the historical record describes it. It means knowing which roofs and neighborhoods in the book are most vulnerable, and which mitigation efforts are changing the equation. And it means protection designed around the accumulation of midsize events, not just around “The Big One.”

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