



HOWDEN

Beyond the horizon
Shaping the future of risk

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Introduction

Humanity has faced numerous existential challenges in its history. It has endured pandemics, experienced devastating natural and manmade catastrophes and overcome economic depressions, wars and societal upheaval.

In a world defined by volatility and complex risk, battles can now be fought without soldiers; artificial intelligence and machine learning have developed to interpret data faster than the human brain; technological advancement means information can be transferred instantaneously across continents with the click of a button. The natural catastrophe landscape also appears to be shifting with losses materialising in new and unforeseen ways, and the traditional distinction between 'peak' and 'secondary' perils is becoming increasingly difficult to justify.

The global (re)insurance sector supports many elements of societal functioning from infrastructure, global trade and supply chains to the environment, healthcare and wider economic development. In a world where hazards are increasingly diffuse, interconnected and severe, it will be critical to meet these evolving threats.

This report discusses some of these challenges and the approaches, which will be required to manage them in future. The primary focus will centre on international risks, as European severe weather, strike, riot and civil commotion (SRCC) risk and deterioration in casualty lines have adversely impacted (re)insurers' performance.

Innovation is a core strength of Howden Re; it recognises that it must stem from the combined expertise of insurers, reinsurers, capital providers, governments and intermediaries, each bringing their own unique skillsets, priorities and viewpoints. The goal is to spark meaningful conversations, leading to enhanced outcomes for all stakeholders.

The (re)insurance sector has navigated a challenging environment over the last two years, characterised by capital volatility, inflation, higher pricing and reduced capacity. As the next phase of this cycle begins, it is imperative to focus on both evolving risks and individually tailored, innovative solutions.



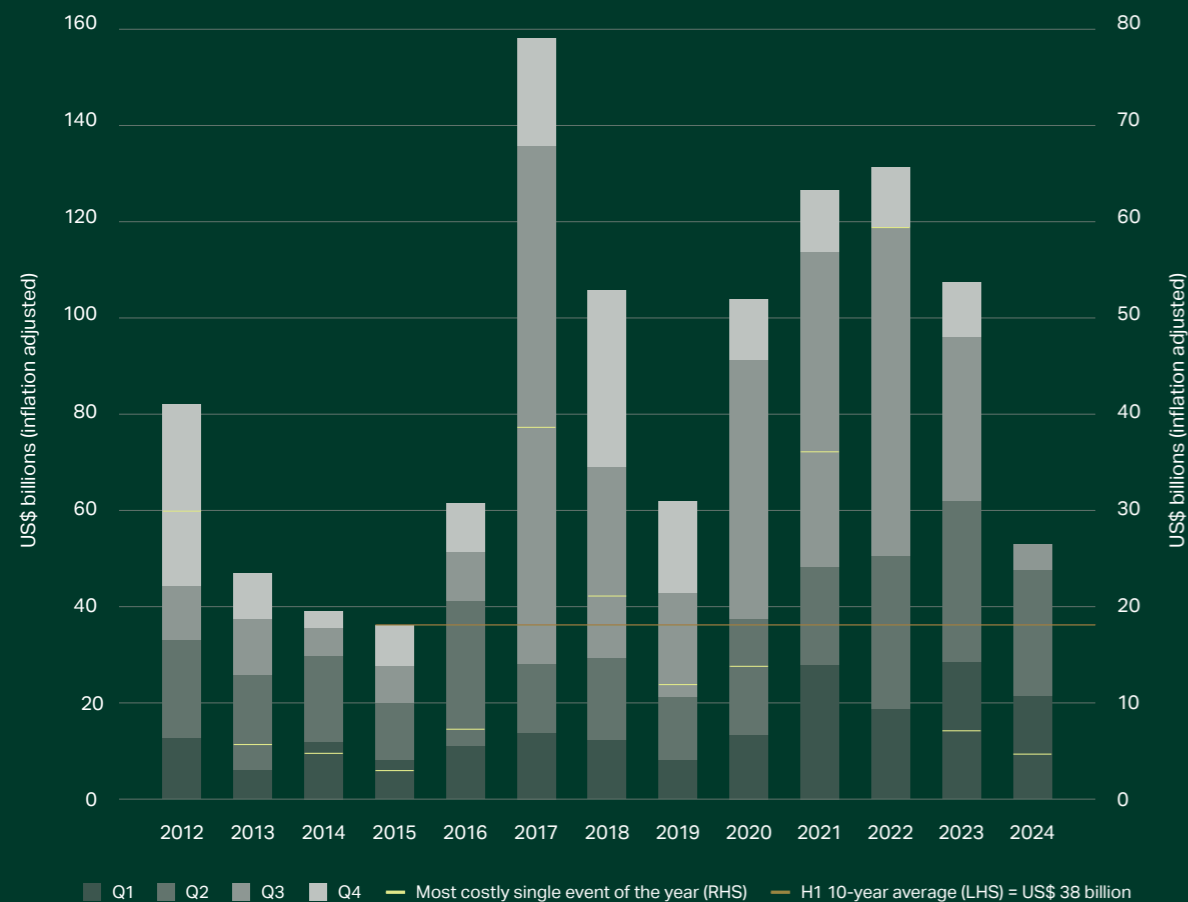
When it rains,



it pours and hails

Figure 1: Insured natural catastrophe losses 2012-2024 YTD compared to the costliest insured loss each year

Source: Howden Re, Nova



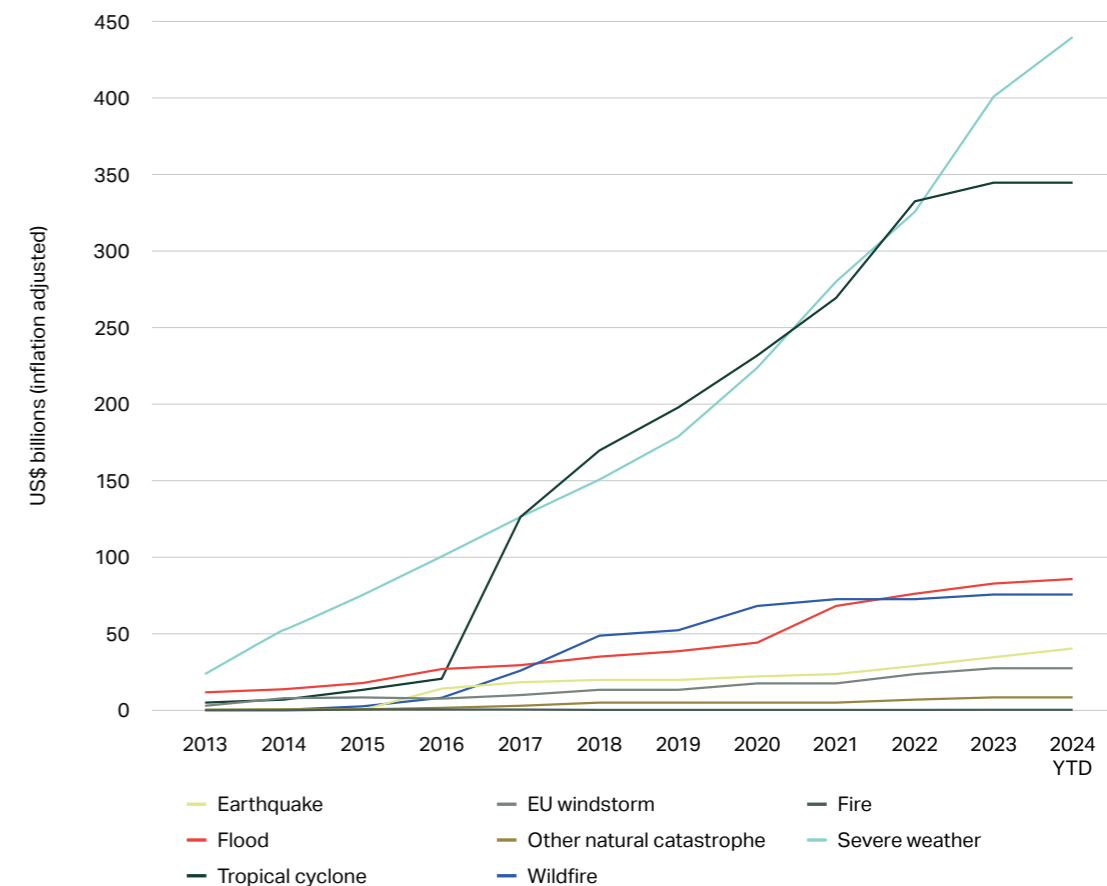
Insured natural catastrophe losses have registered a significant real-term increase over the past decade. Warming global temperatures, elevated population density in high-risk areas, inadequate climate-resilient infrastructure, re-building cost inflation, rising property values and supply chain bottlenecks are just a few of the factors driving this trend.

In 2023, a year of fewer high severity, or peak-peril, weather events, total industry natural catastrophe (nat-cat) losses still exceeded US\$ 100 billion. Additionally, in the first half of 2024, insured nat-cat losses totalled US\$ 52 billion, approximately 35% above the ten-year H1 average. This indicates an increase in the relative severity of H1 events, which is typically considered a milder nat-cat season compared to H2.

⁽¹⁾ Source: Nova

Figure 2: Cumulative global natural catastrophe losses by peril

Source: Nova

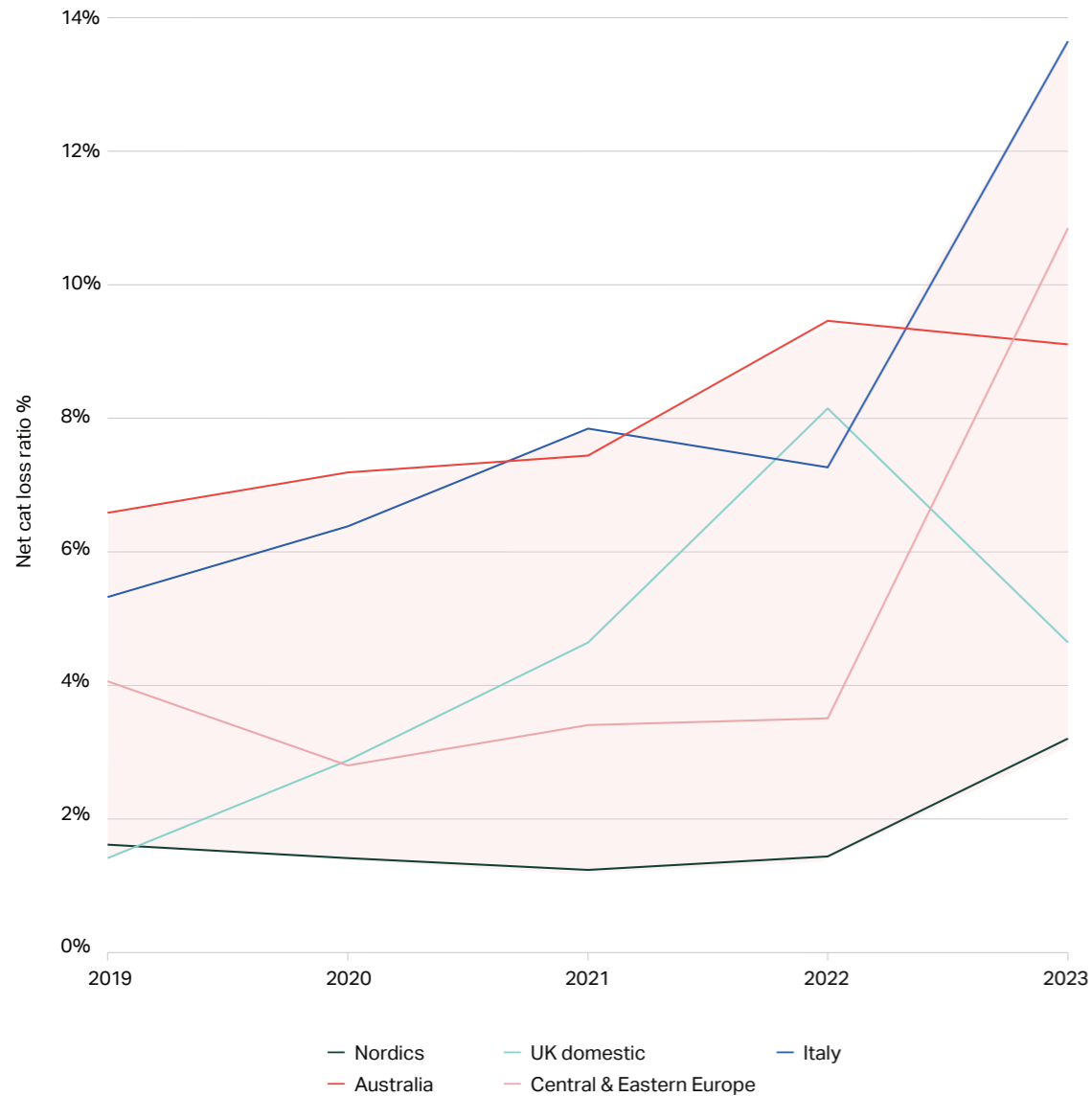


A closer examination of the 2023 figures reveals that global insured losses from severe weather (excluding tropical cyclones) accounted for approximately US\$ 93 billion of the US\$ 105.6 billion total.⁽¹⁾

Analysing longer-term trends on a cumulative, inflation-adjusted basis, Figure 2 shows that losses from severe weather have now surpassed those from any other insured natural catastrophe since 2013. Severe weather is increasingly driving insured losses, consistently outpacing tropical cyclones over the last decade. This trend, while acknowledging the volatile nature of these cyclones, underscores the growing role of 'non-peak' perils as major loss drivers. This is further reinforced by the consistent upward trend in flood and wildfire losses since 2016.

Figure 3: Impact of nat-cat losses on cedent net loss ratios

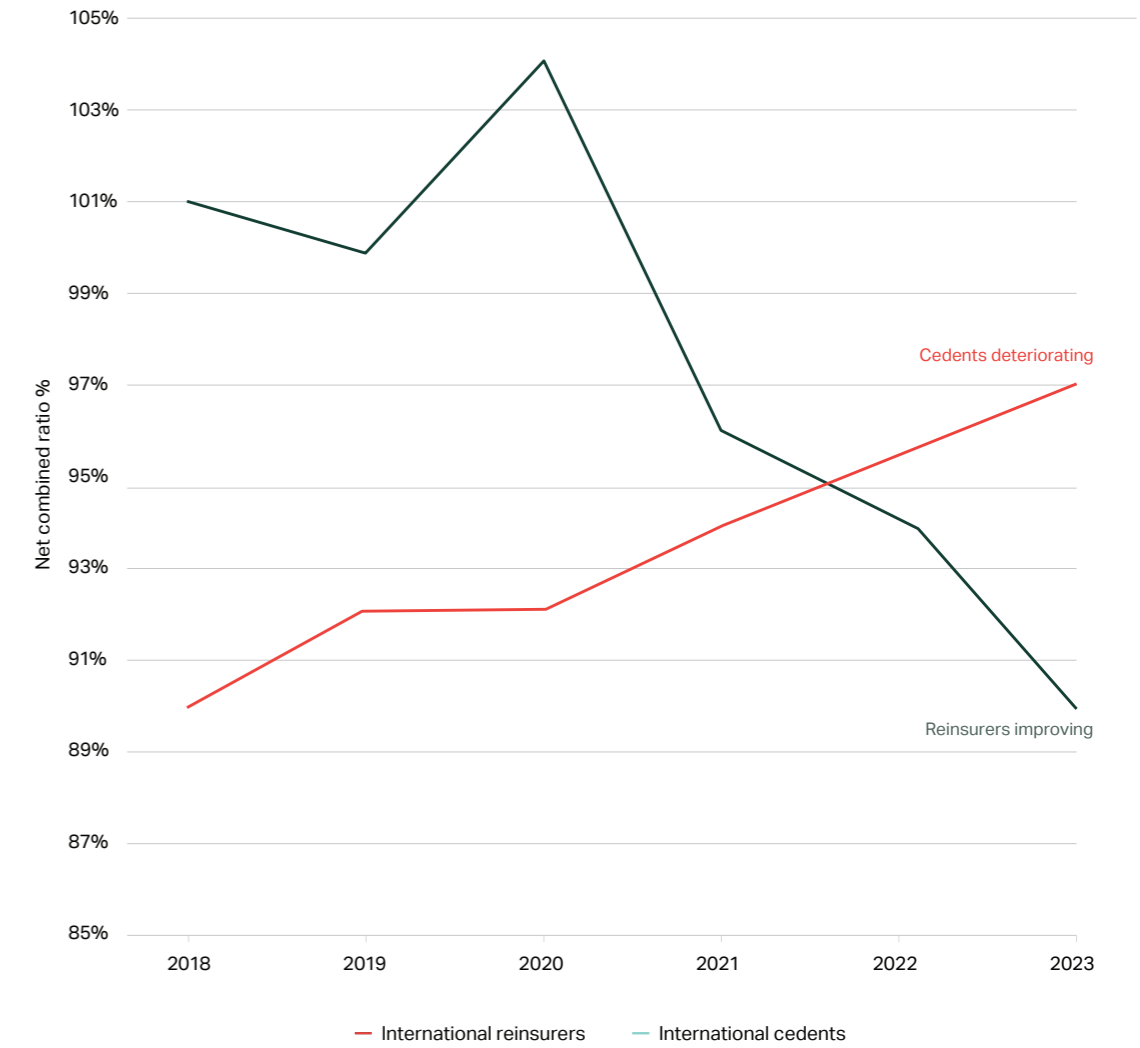
Source: Howden Re



The (re)insurance industry is feeling the ripple effects of these changes. While global losses have escalated significantly, international cedents (excluding US), have experienced a notable uptick in their attritional natural catastrophe claims. This is illustrated by the general increase in net catastrophe loss ratios (Figure 3) for international carriers since 2019.

Figure 4: Impact of increased retentions on international cedent and reinsurer net combined ratios

Source: Howden Re



An additional challenge is that higher attachment points from many of these smaller, more frequent events now fall below the reinsurance coverage threshold. As non-peak nat-cat events outside the US become more severe, primary international insurers are absorbing a larger proportion of losses overall, eroding profitability in recent periods. However, international reinsurers have benefited in the short term, as fewer claims reach their layers, resulting in improved underwriting performance and return on capital (Figure 4).

Figure 5: Comparison of international cedent and reinsurer H1 loss ratios for nat-cat and non-nat cat (2020-2024)

Source: Howden Re

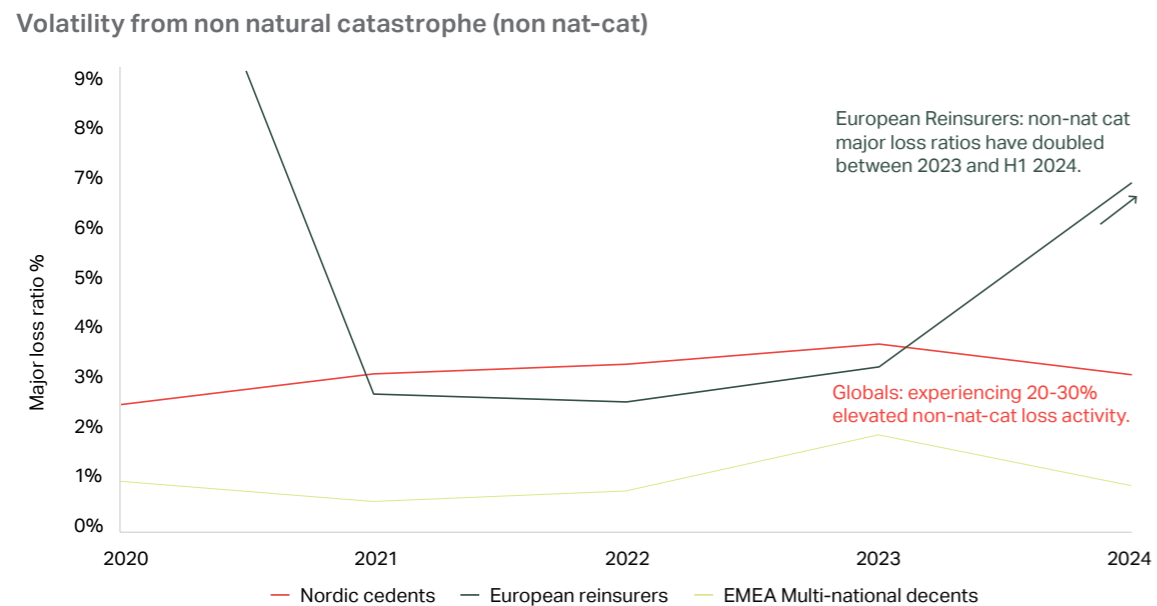
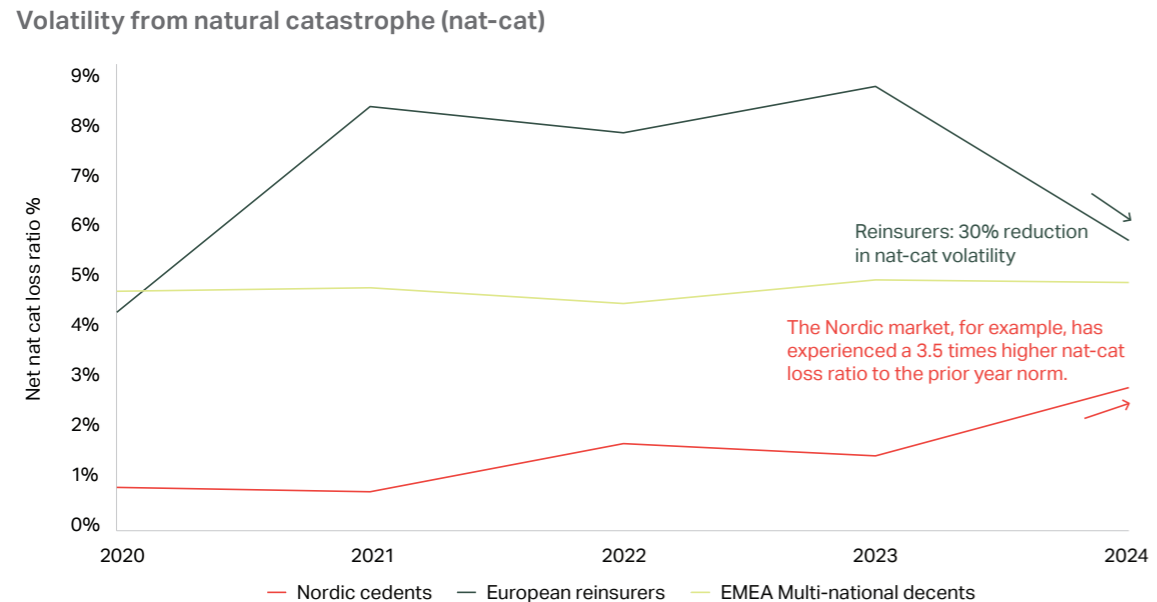


Figure 5 shows that reinsurers have seen a 30% reduction in nat-cat loss ratios in 1H24 compared to FY23. Meanwhile, cedents have seen a notably poor half in the Nordic region.

Non-nat-cat events are an exception to reinsurers' otherwise improved results, suggesting a shift in the historical exposure balance. European reinsurers' major non-catastrophe loss ratios have doubled since 2023, reaching the highest level since the Covid-19 pandemic. The analysis suggests that while cedents still bear a greater proportion of nat-cat retentions, reinsurers are grappling with outsized non nat-cat losses.



In the natural catastrophe landscape, there is, nevertheless, a limit to how much risk insurers can prudently retain. Some are already reaching the critical juncture where they must reassess their participation in certain lines of business.

This industry-wide recalibration is evident in high-risk areas like California, where several insurance carriers have ceased writing wildfire coverage due to the challenge of providing policies that are both sustainable and competitive.

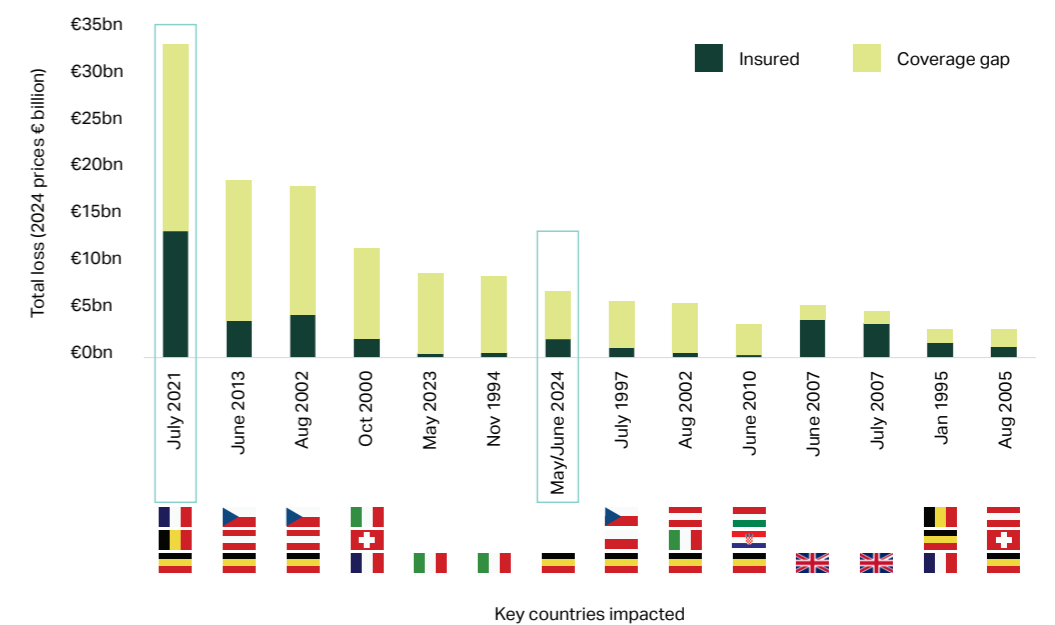
To fulfil the industry mission of creating the capacity to cover the exposures of tomorrow, it will be imperative to mitigate increasingly unsustainable risk levels. The path forward requires all stakeholders in the (re)insurance value chain to protect against losses the world will face in future. Achieving this requires innovative solutions and placements beyond what are currently available. Viable solutions can be found through balancing investment in preventative infrastructure and introducing new capacity to market. As European carriers have experienced a significant surge in nat-cat retentions, the following section analyses contributing factors and possible solutions to mitigate their impact.

In deep water: European flood losses making waves

Flooding is now one of the main perils driving 'non-peak' or 'frequency' losses in Europe. Figure 6 shows that flooding in May and June 2024 in Bavaria, were likely the sixth and seventh largest insured and economic European flood losses in the past thirty years, respectively. While it is difficult to compare losses directly from this event to prior German floods, especially as German catastrophe insurance penetration in 2002 was only 25% compared to 45%-50% in 2024, this does not wholly account for their relative severity. Moreover, four of the top five European flood events have occurred in summer, establishing a trend of more severe summer flooding. To investigate further, it is instructive to examine in detail the costliest insured loss event depicted in Figure 6: flooding associated with Storm 'Bernd.'



Figure 6: Insured and economic European flood losses in descending order of economic loss
Source: CRESTA Clix, NOVA, Multiple



Lessons from Bernd:

In July 2021, a stationary low-pressure system, 'Bernd', caused extreme precipitation and flooding in parts of Western Europe, particularly devastating Germany's Ahr valley. Low-pressure systems typically create adverse weather, with winds blowing anti-clockwise and rising air leading to increased precipitation. In Bernd's case, warm, moist air from the Mediterranean was forced upward when it encountered mountainous terrain, causing heavy rainfall.

What made Bernd so severe was its prolonged duration over the affected areas, due to atmospheric blocking by a high-pressure system over Eastern Europe. This resulted in some areas receiving a month's worth of rainfall in just 24 hours, leading to catastrophic flooding.⁽²⁾ The unusual intensity of this event prompted many to question why Bernd was worse than other recent flood events in the region.

The system's stationary nature, combined with the orographic enhancement of rainfall by mountainous terrain and the deluge of precipitation, made Bernd particularly devastating. The volume of water quickly overwhelmed both natural and man-made drainage systems. Additionally, the impact was magnified by pre-existing environmental conditions: a drought in 2018 eroded soil, increasing susceptibility to mudslides, while convective storms in 2021 had already saturated the same soil.⁽³⁾ These factors collectively reduced ground capacity to absorb additional water, significantly amplifying the flood's destructive power and extent.

Insured losses from Bernd surpassed €13 billion in total, making it the costliest insured European flood event of the past thirty years. As the Arctic warms, temperature differences between the Arctic and areas further south decrease, weakening the jet stream that circles the North Pole. This weakening leads to more pronounced undulations in the jet stream, allowing cold air to push southward and warm air to reach higher latitudes. These larger waves cause air masses and associated weather patterns, such as low-pressure systems, to move more slowly and linger in specific locations. This can prolong adverse weather, potentially escalating to more extreme events with similar characteristics to Bernd.⁽⁴⁾ It is predicted that atmospheric blocking events will see a 50% increase in their annual number to 2100 pursuant to this⁽⁵⁾, meaning flood events are likely to become more frequent.

⁽²⁾ Source: Allianz. (2021, October)

⁽³⁾ Source: Swiss Re. (2022, October)

⁽⁴⁾ Source: NOAA, J.A Francis. (2018)

⁽⁵⁾ Source: D. Coumou et al. (2018)

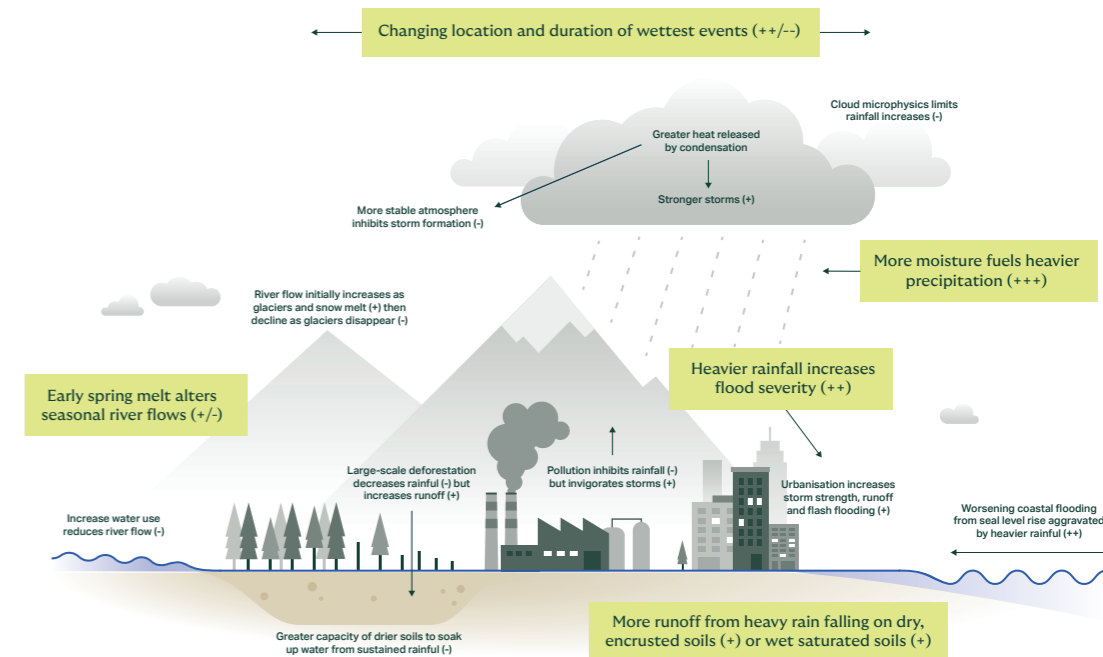
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The climatological factors impacting central European flood risk are varied. Howden Re's analysis has focussed on five key climate trends, which alter flood experience across Europe.

Figure 7: Climatological factors impacting central European flood risk with Howden Re's areas of focus highlighted in green

Source: Annals NY Academy of Science, Volume: 1472, Issue: 1,

Pages: 49-75, First published: 04 April 2020, DOI: (10.1111/nyas.14337)



Specifically, Figure 8 shows that, when comparing Bernd and other historical floods to the 2024 German floods, peak three-day rainfall events now affect a broader range of German geographies than the more localised events of the past. During the May/June 2024 summer floods, more of southern Germany was impacted by extreme rainfall than at any point measured since 1899. At the same time, the maps in Figure 9 indicate that conditions preceding the May/June 2024 flood events were more comparable to previous winter floods than summer flooding, reflecting their severity.

Figure 8: Regional impact of peak 3-day rainfall extremes in Germany May/June 2024 floods compared to historical examples

Source: Climate data centre portal, German Weather Service

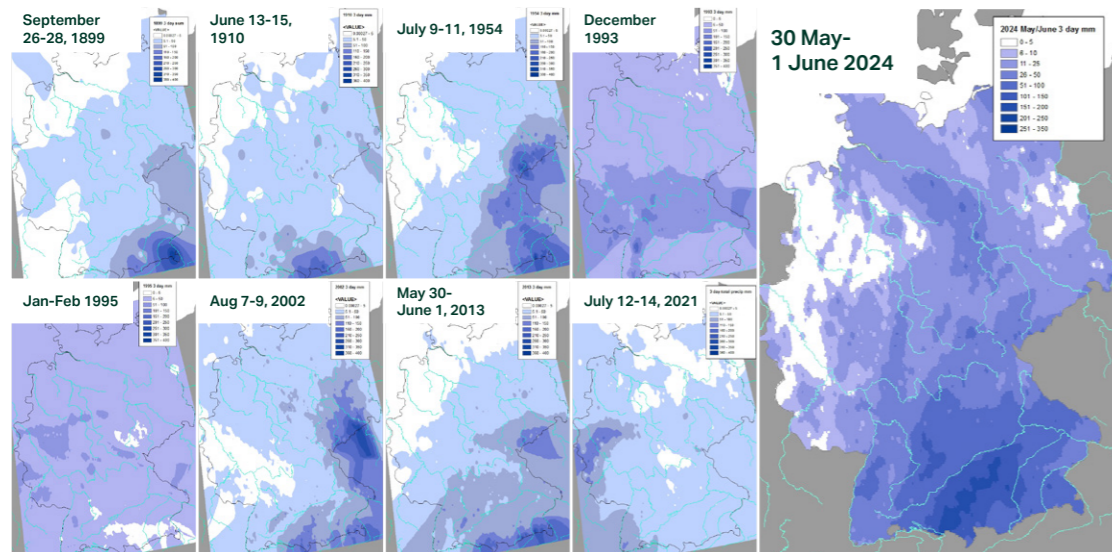


Figure 9: Regional antecedent conditions of peak 3-day flood events in Germany May/June 2024 floods compared to historical examples

Source: Climate data centre portal, German Weather Service

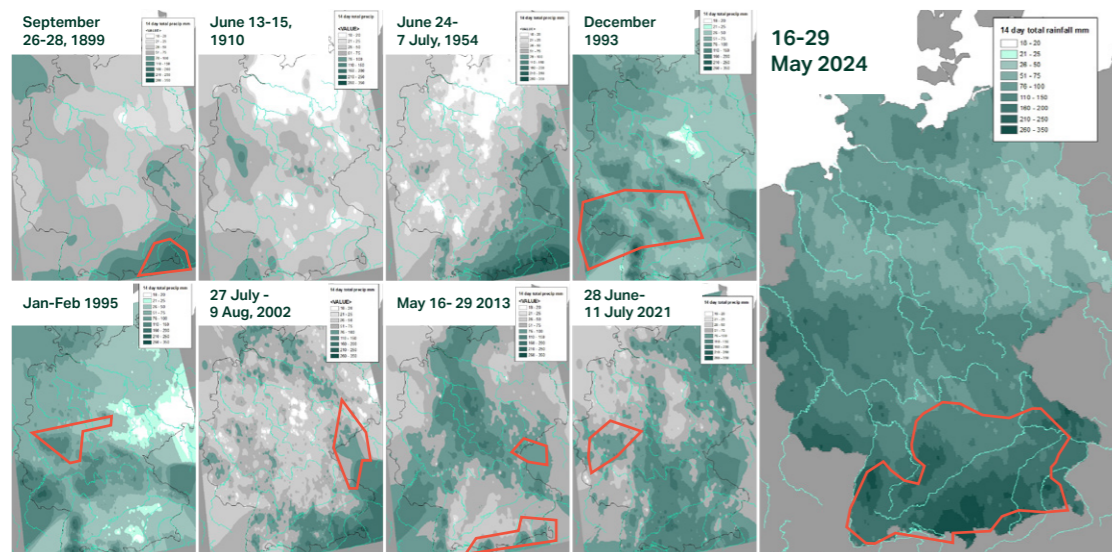


Figure 10: Trend in the number of days in summer months (5,6,7,8) with a precipitation greater than the two-year return period precipitation.

Source: Howden Re, DWD Climate Data Center

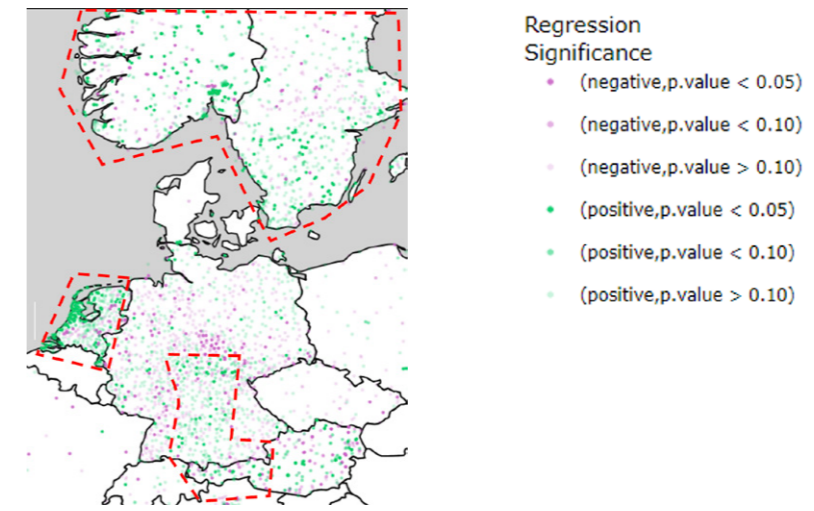
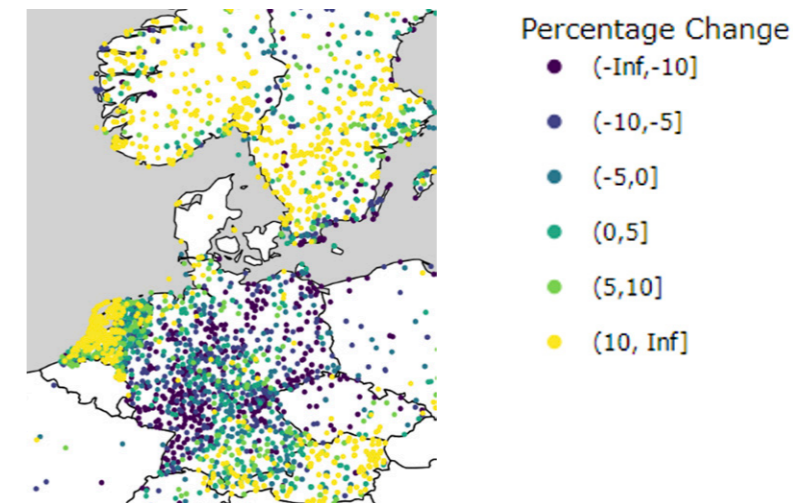


Figure 11: Percent change in mean daily precipitation in summer months (5,6,7,8) between 1975-1997 and 2019-2024.

Source: Howden Re, DWD Climate Data Center



Seasonal differences in precipitation patterns vary naturally across Europe, as shown in Figure 10. An analysis of summer days with precipitation exceeding the two-year return period reveals a clear, positive trend over central Europe (Austria, Switzerland, and southern Germany). However, this trend turns negative in northern Germany (Anhalt/Niedersachsen - Lower Saxony) before shifting back to positive in the Nordic regions. When comparing the percent change in mean daily summer precipitation between 1975-1997 and 2019-2024, there is a strong indication that the 2019-2024 period experienced more summer rainfall in general (areas in yellow) with some reductions in other locations (areas in purple) (Figure 11). The overall trend suggests that summer precipitation events vary regionally across Europe, potentially leading to more severe flood events in areas experiencing greater precipitation and requiring tailored (re)insurance solutions in locations with the most significant increase in rainfall.

Staying high and dry: flood solutions to keep afloat

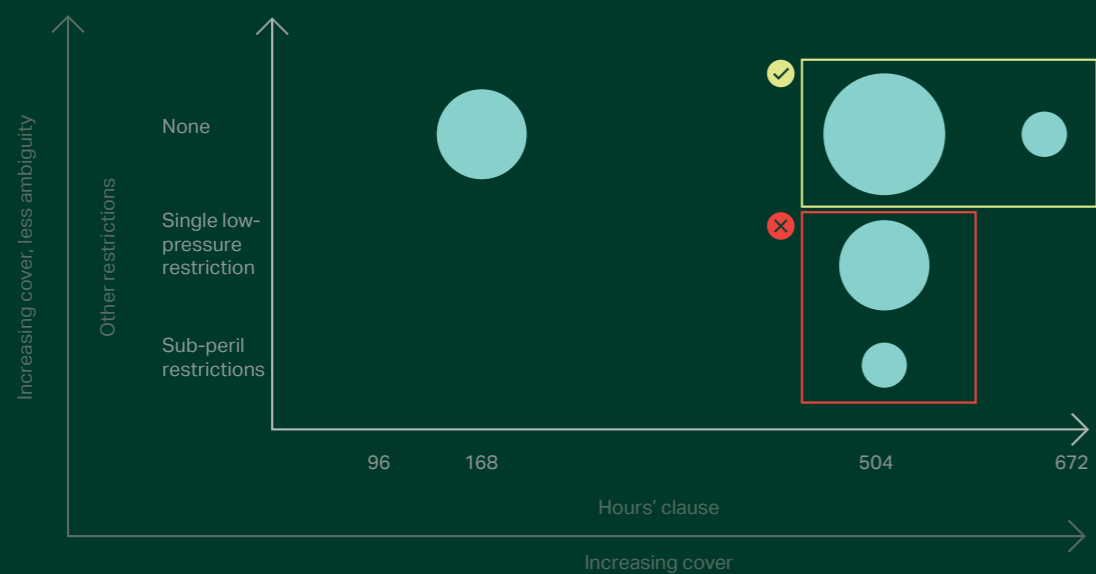
As blocking patterns become more frequent, flood events are expected to prolong, potentially blurring the boundaries between single-storm events. This trend underscores the growing need for cedents to work with reinsurers to scrutinise specific restrictions in their reinsurance contracts.

In a hard market, characterised by limited capacity and risk aversion, reinsurers may impose more stringent hours clauses.⁽⁶⁾ These clauses define the time period over which single-event losses can be aggregated for coverage purposes. More restrictive hours clauses may limit the duration of covered losses, potentially leaving cedents exposed to uncovered losses from extended events.

Additionally, reinsurance contracts often include anti-stacking provisions or event definition clauses, particularly for European windstorms, that prevent payouts from being combined across multiple storms.⁽⁷⁾ These clauses aim to limit reinsurers' exposure by treating closely occurring events as single occurrences, even if they might not be considered separate from a meteorological perspective.

Figure 12: Cat XL policy wordings in the Central European market with bubble size indicating prevalence of contract wordings

Source: Howden Re



⁽⁶⁾ Source: Verisk. (2019, October)
⁽⁷⁾ Source: Verisk. (2019, October)

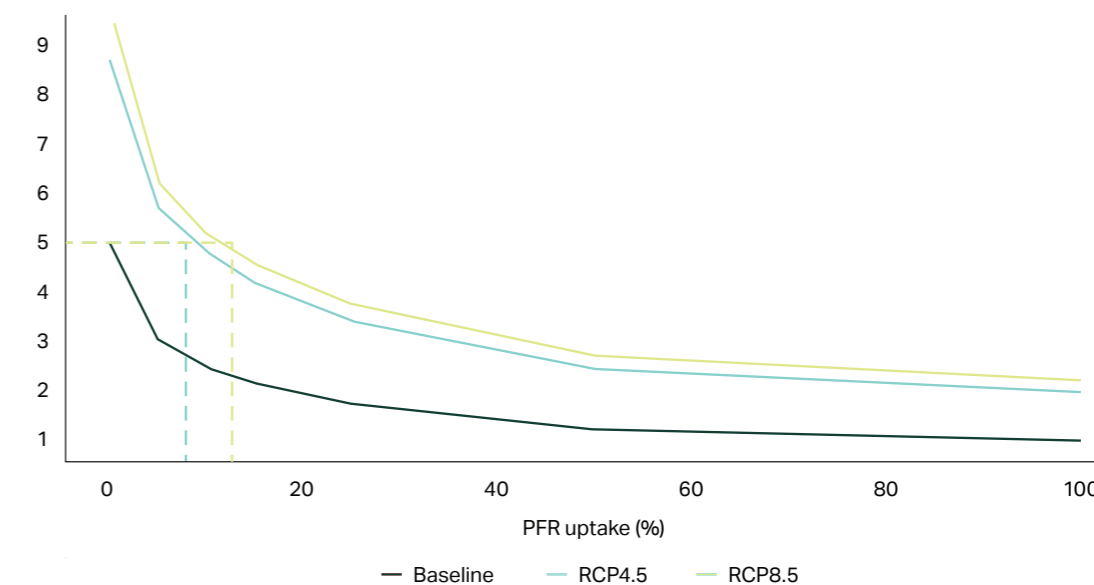
The interplay between restrictions and changing flood patterns presents a new risk management challenge. As the sector adapts to longer-duration, frequency perils such as flood, it is crucial that cedents, reinsurers, intermediaries and capital providers collaborate to ensure adequate coverage. Capacity will only enter the market via solutions that are beneficial to all parties. Howden Re is helping clients to assess the changing nature of flood risk through combining its expertise with that of cedents and reinsurers to secure the best terms for all parties under these shifting conditions.

Preventing flood loss does extend beyond re-contemplating exclusions, however. Understanding the granular regional shifts of where and when floods might occur in future can help mitigate their impact particularly in assessing where flood resilience measures exist, and how they support flood preparedness.

Flood protection infrastructure in vulnerable communities can have a tangible impact on insurers' loss experience. Flood Re's 'Build Back Better' initiative in the UK, for example, allows homeowners to implement property flood resilience measures up to a value of £10,000 when repairing properties after a flood.⁽⁸⁾ For example, a 2023 study by JBA Risk Management on the efficacy of these measures found that a 5% uptake in property flood resilience (PFR) in the UK could result in a significant decrease in average annual loss (AAL) experience⁽⁹⁾.

Figure 13: Average annual loss (£ hundreds of millions) for all climate scenarios under different PFR uptake scenarios

Source: JBA Risk Management

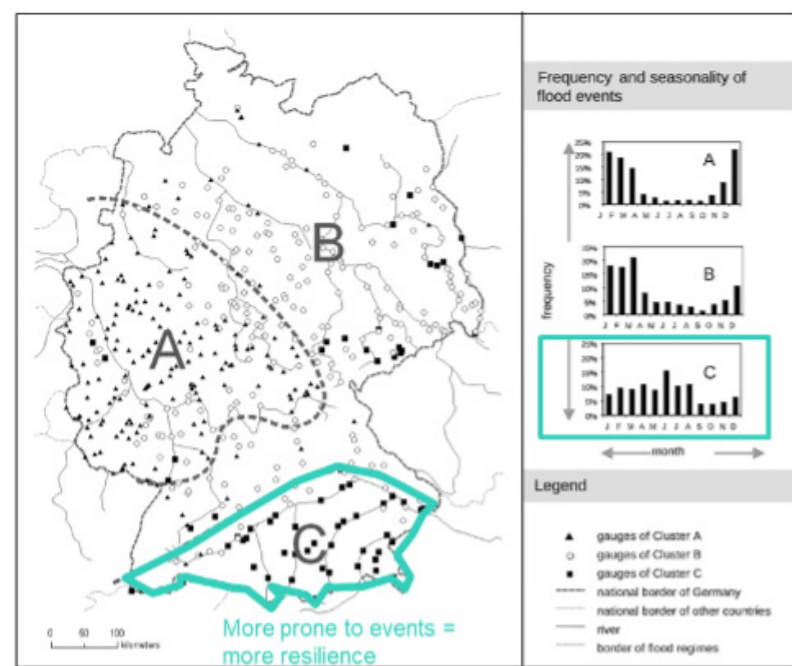


⁽⁸⁾ Source: Flood Re, Build Back Better. (2024).
⁽⁹⁾ Source: JBA Risk Management. (2023, January). Building back better to increase flood resilience.

While these measures have an associated up-front cost in the short term, an analysis by Zurich in 2013 following Flood Xaver in the UK found that for every £1 invested in flood protection between £6-10 was saved.⁽¹⁰⁾ In the case of Xaver, estimates indicate that flood defences prevented £32 billion in direct financial losses.⁽¹¹⁾

The analyses previously presented in Figures 10 and 11 highlight granular, location-specific trends in rainfall, indicating areas where precipitation has increased in the past and where severe summer flooding might persist in future. This is meant to enable collaboration with clients in identifying regions where flood events are most likely to intensify, and to assess each location's preparedness to withstand the impact of future flooding. Figure 14 reveals that German regions with a historically high incidence of flood events have shown stronger overall resilience to such occurrences. By integrating precipitation patterns and resilience metrics with a client's portfolio, unique insights into specific flood risks can be gained.

Figure 14: German flood resilience and frequency/ seasonality of events
 Source: Spatial pattern of rainfall clusters in Germany, Beurton, S., & Thienken, A. H. (2009). Seasonality of floods in Germany. Hydrological Sciences Journal)



⁽¹⁰⁾ Source: Zurich Insurance Group. (2014, September)

⁽¹¹⁾ Source: Zurich Insurance Group. (2014, September)



When in Rome, expect hail: a spotlight on severe convective storms

Section 1.1 highlighted that more frequent atmospheric blocking patterns will likely lead to more static, and therefore longer-lasting precipitation events, enhancing the probability of severe flooding in Central Europe. However, insured losses from severe convective storms (SCS), or thunderstorms, have also increased steadily and are likely to continue to do so.⁽¹²⁾ According to Howden data from 2013-2023, SCS now accounts for 36% of global insured natural catastrophe losses. For the past three years, insured losses from SCS have surpassed US\$ 5 billion each year in Europe, trending above the long-term average.⁽¹³⁾

Observations of large hail occurrence in Europe have increased significantly over time, as shown by data from the European Severe Weather Database since 2000 (Figure 15). In the summer of 2023, Italy experienced several severe hailstorms with record breaking hail sizes in both Friuli Venezia Giulia and the Po Valley. Between 18-25 July, damage from large hailstorms incurred over €5 billion in insured losses, primarily driven by government incentives to install solar panels on homes that were not adequately resilient to withstand large hail.⁽¹⁴⁾ Figure 16 shows that since 2017, there have been significantly more potential hail days (PHD) in the Po Valley than previous periods. According to the OECD, total non-life insurance penetration in Italy the year before (2022) was only 1.87%. Assuming penetration did not significantly increase since the latest dataset, 2023 hail underwriting losses could have been significantly higher had insurance penetration been closer to that of the United States, for example, 7.5% in 2022.⁽¹⁵⁾

⁽¹²⁾ Source: Swiss Re. (2024, March).

⁽¹³⁾ Source: Swiss Re. (2024, March)

⁽¹⁴⁾ Source: Nova

⁽¹⁵⁾ Source: OECD

Figure 15: Large hail occurrence in Europe between Jan 1 and-Dec 31 2000-2023
Source: European Severe Weather Database

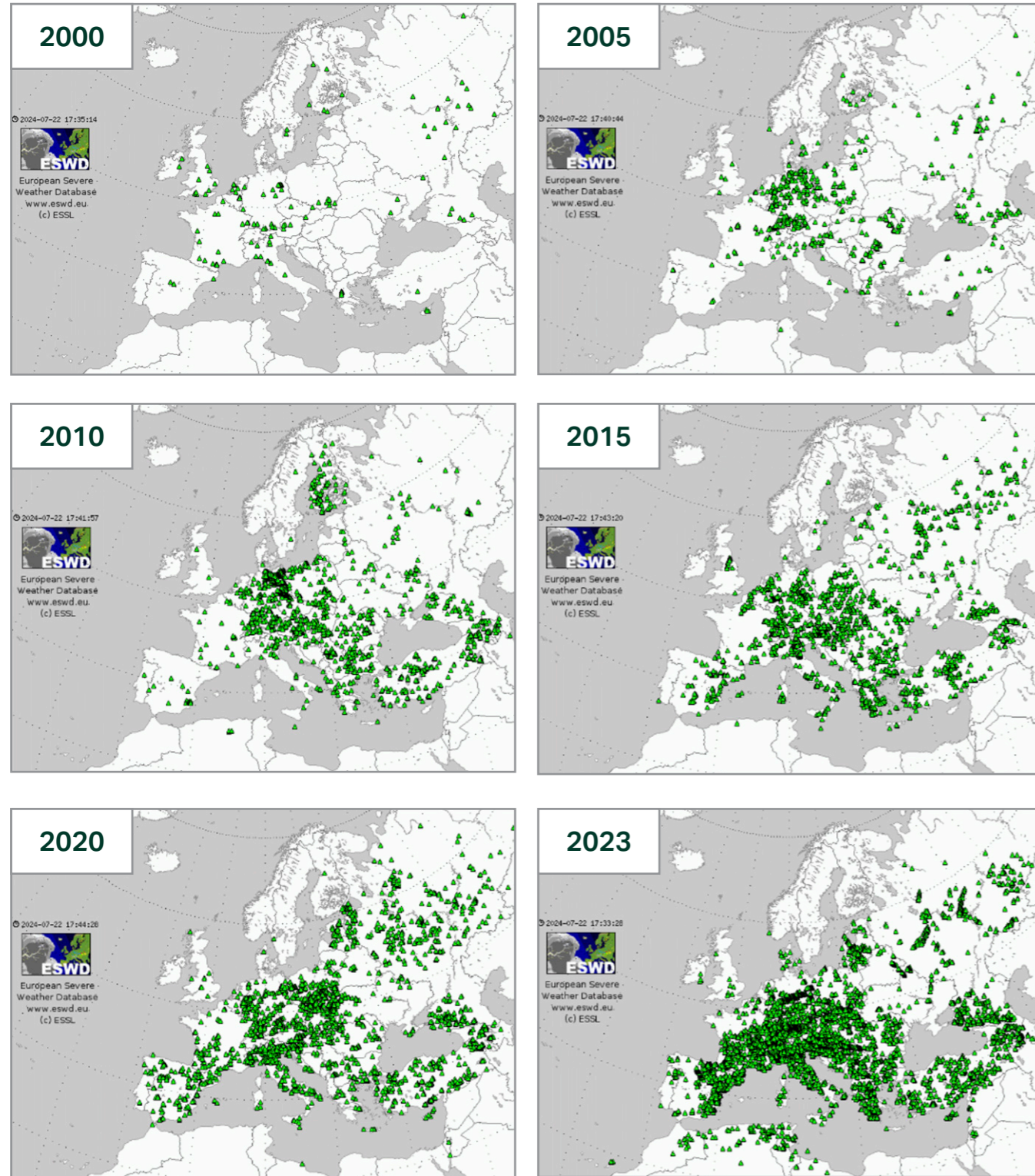
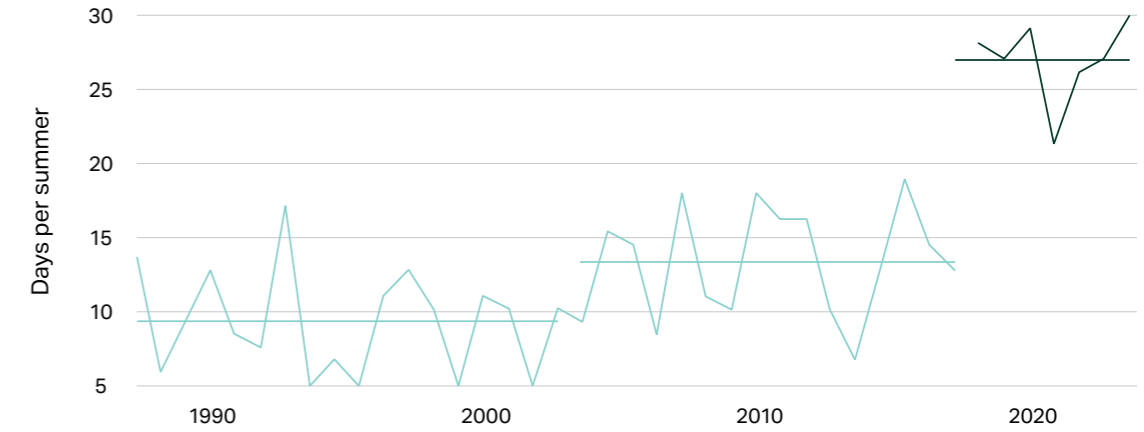


Figure 16: Number of days within the Craven Parameter exceeding $10000\text{m}^3/\text{s}^3$ for summer (JJA) in the Po Valley
Source: Moody's RMS



Creative and collaborative solutions are imperative to shift the burden away from (re)insurer's balance sheets. As hailstorms become more severe in Italy and throughout Europe, demonstrated in Figure 15, coverage will need to reflect projected, longer-duration events.

Ice breakers: innovative approaches to combat hail damage

Howden Re adopts a holistic approach to understanding a client's view of risk (VoR). While more frequent, severe convective storms in Europe represent one facet of the broader natural catastrophe exposure landscape, a nuanced understanding of specific risks within a wider context informs better decision-making. Bespoke tools enable continuous development and refinement of a client's VoR, addressing critical concerns such as nat-loading, accumulation management, and capital setting through tools such as TigerCQ. Working together with placement teams, capital markets experts and reinsurers, this comprehensive understanding enables carriers to mitigate earnings volatility while attracting capacity from a broad range of providers.

Beyond the blast zone:



navigating
the shifting
landscape
of SRCC risk

2.1

The SRCC loss environment

As highlighted in the introduction to this report, the world is facing one of the most complex and perilous risk landscapes in modern history, making the challenges for the global (re)insurance sector increasingly critical.

Beyond naturally occurring events, the focus now shifts to man-made catastrophes (man-cats), including terrorism, political violence, war and civil unrest, which have gained significance in this era of heightened geopolitical risk.

The current landscape, characterised by rising political tensions, economic instability and widespread social unrest, has brought SRCC (strike, riot and civil commotion) events to the forefront of (re)insurer concerns. Once considered secondary to traditional terror risks, SRCC events are now a primary driver of losses within the terrorism and political violence market. The interconnected nature of today's risks means that SRCC events are not isolated; they are part of a broader, increasingly volatile environment reflecting global challenges.

“ Since 2015, inflation-adjusted SRCC losses have surpassed US\$ 13 billion, compared to just US\$ 1 billion for terror-related losses as of 2023. This shift positions SRCC as the pre-eminent political violence (PV) threat, overshadowing traditional terror risks.

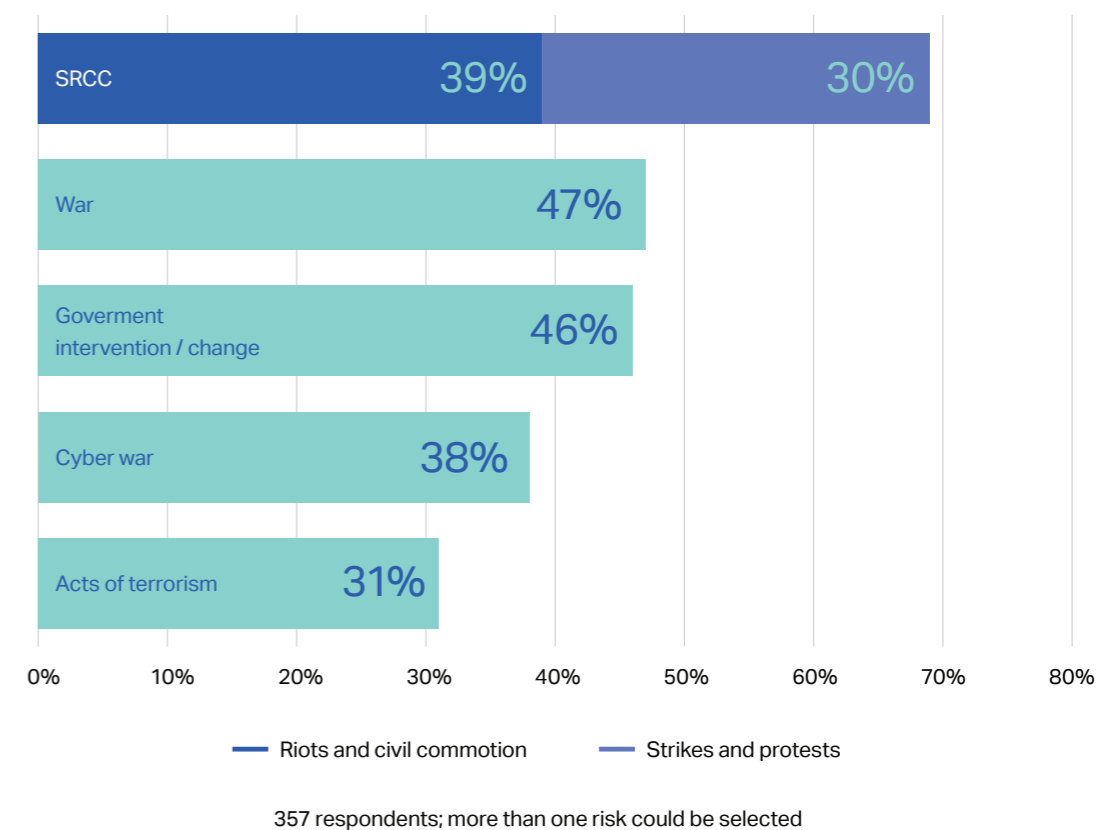
Figure 17: SRCC losses compared to traditional terror losses (2015-2023)
Source: Howden Re



Historically, the (re)insurance market focussed on modelling large-scale terror losses to guide underwriting and pricing. However, the current risk landscape has evolved. Smaller, more frequent SRCC losses, which can aggregate under original policies, now present the most significant threat to (re)insurers (see Figure 18).

In this unpredictable world, it is essential for the reinsurance sector to adapt and innovate. The rising frequency and severity of SRCC events demand a nuanced approach, integrating advanced modelling, detailed data analysis and collaborative industry efforts. This will ensure resilience and better management of the emerging challenges in an increasingly interconnected global risk landscape.

Figure 18: PV risks of most concern to businesses
Source: Howden's A world of Trouble, Allianz⁽¹⁶⁾



⁽¹⁶⁾ Source: Allianz. (2023). Risk Barometer.

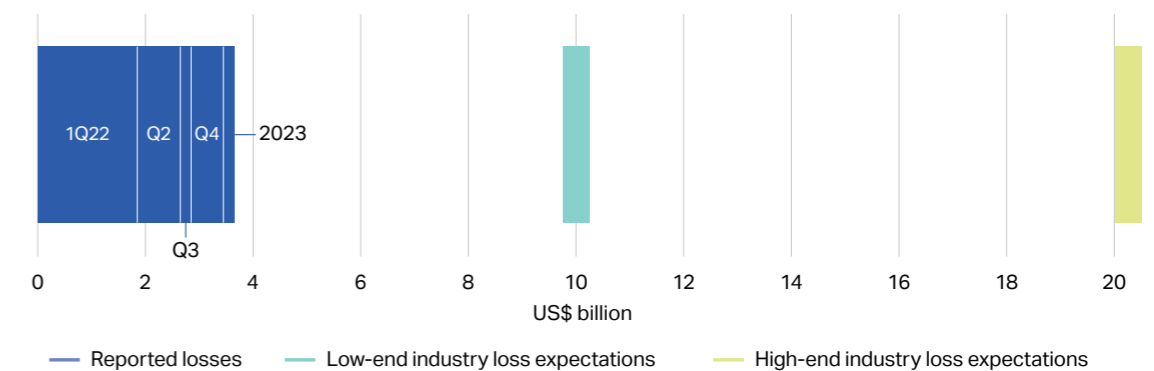
2.2

The changing scope of strike, riot and civil commotion (SRCC)

Traditionally, terrorism and PV (including SRCC) have been placed within the property and specialty markets, either as affirmative (an explicit, named peril) or as non-affirmative cover (unnamed exclusion or silently embedded). It is estimated that US\$ billions of SRCC exposure is embedded in this way and is neither aggregated nor priced accordingly. Terror and PV are usually written to an aggregate limit, with 'all risks' coverage given to SRCC events, on an 'each and every basis'. Consequently, the property market is vulnerable to black swan SRCC events, where coverage is effectively uncapped within the 'all perils' market. This occurred most recently in New Caledonia (2024), in which the market incurred ca. US\$ 1 billion of losses from embedded exposure.

Following consecutive years of large-scale SRCC losses, tighter exclusions, terms and conditions and increasingly restricted policy wordings were introduced. This was evident at the 1 January 2023 reinsurance renewals, where there were several increased restrictions on event duration and radius clauses. These were further tightened following the outbreak of conflict in Ukraine, which is now expected to be one of the largest PV losses on record (Figure 19)⁽¹⁷⁾.

Figure 19: Reported (re)insured losses for Ukraine war vs ultimate industry loss estimates
Source: Howden's 2024: A turning point, company reports



⁽¹⁷⁾ Source: Howden. (2024, March). A Turning Point.

Restrictions imposed at the January 2023 renewal significantly impacted insurers. Pricing and retentions increased significantly, with line size reductions imposed across the various perils. As a result, placing SRCC became increasingly difficult for certain occupancies.

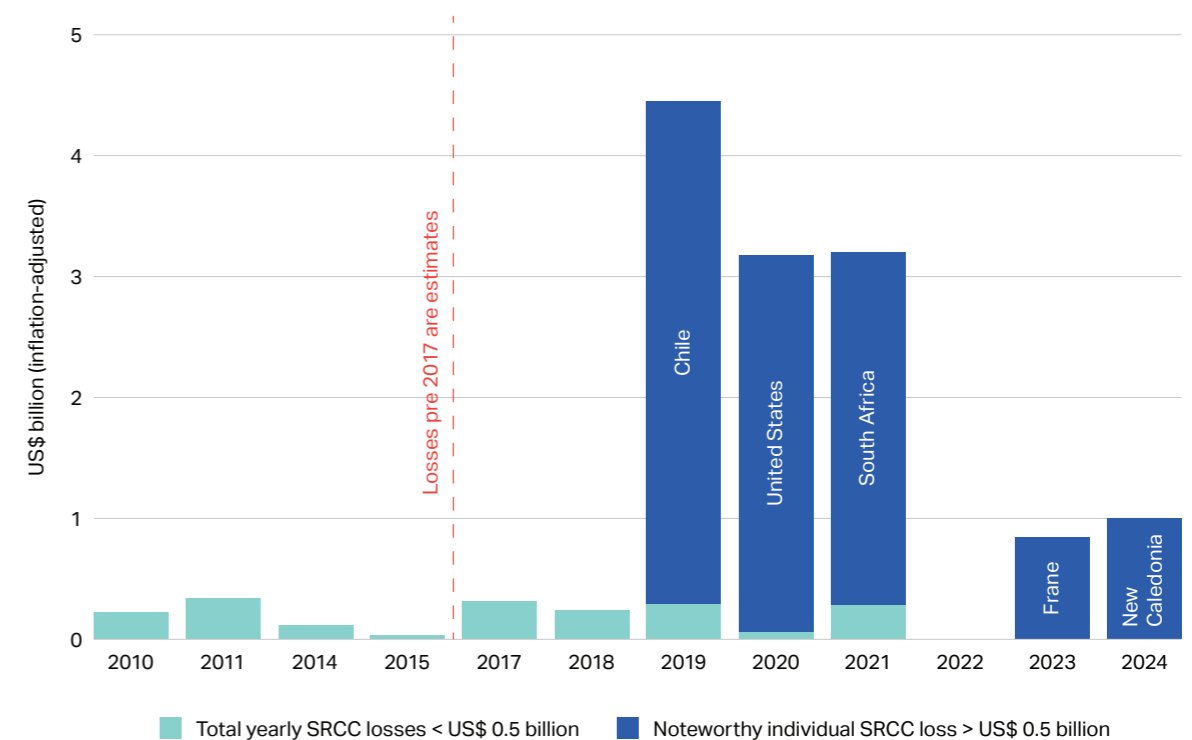
Many cedents have been unable to purchase the same limits as previously, e.g., the standard terrorism retention for some London Market excess-of-loss (LMX) cedents doubled. As property carriers withdrew SRCC cover, few cedents achieved coverage for all perils throughout the entire structure, and therefore needed standalone terror limits despite a reduced risk appetite.

At 1 January 2024, SRCC was reintroduced, albeit within narrower parameters. There was some evidence of widening on clauses where clients could demonstrate best-in-class aggregate data (i.e. for reinsurance pricing analyses by peril, location, and occupation). There have been minimal changes in reinsurance pricing, but increased rates remain inconsistent with the direct market and are not aligned with higher reinsurance costs. Finally, composite-market standalone SRCC has been offered on an ad-hoc basis, with a decreasing number of lead PV markets showing appetite, but at increased prices and retentions. Reinsurers are increasingly tentative in underwriting SRCC exposure, driven by uncertainties about the composition of underlying portfolios in an increasingly volatile world. As SRCC coverage becomes less prevalent in the property market, there is a growing need for a standalone product that is adequately priced and accurately reflects the client's true exposure.

To facilitate a standalone SRCC product in the market, it is necessary to capture an accurate, granular loss history. For its part, Lloyd's have introduced an SRCC risk code for the first time this year. This allows SRCC to be isolated from losses associated with traditional standalone terror placements. The following events previously captured as terror, would now be classified as SRCC; Chile 2019 (ca US\$ 4 bn.), US BLM 2020 (ca US\$ 3 bn.), South Africa 2021 (ca US\$ 3 bn), New Caledonia (ca US\$ 1 bn).

Figure 20: Civil unrest insured losses in real terms from 2010-2024 split by individual noteworthy losses greater than US\$ 500 million

Source: Howden Re, Nova



In the US, clients remain comfortable with existing bomb blast methodology and the Lloyd's RDSs associated with terrorism following the 11 September 2001 terror attacks. Despite a lack of terror 'events' and losses, improved computational fluid dynamic (CFD) modelling on standard practice truck bomb scenarios produces an output with which clients and insurers are now familiar. As such, there is sufficient capability to model standalone terror in the US, especially within central business districts such as New York or Boston. However, this outlook changes significantly when considering emerging market risk or London market-based syndicates (and companies) who specialise in writing a global PV portfolio. Clients (both London Market and international insurers) are seeking better understanding of new emerging market risk in multiple lines and classes within their portfolios.

2.3

Why concentric circles aren't appropriate for SRCC



Distribution and motivation

SRCC is a complex peril and an 'emerging' product, requiring an innovative approach that differs from traditional terrorism modelling.

Conventional explosives largely ignore a city's topography as they attenuate outwards. However, a blast can be reflected, and a vehicle-borne improvised explosive device (VBIED) may be channelled or redirected by hostile vehicle mitigation (HVM). Such IEDs typically have limited reach, detonating and impacting a concentrated area, regardless of who employs them or where they are used. Therefore, the use of concentric circles in terror modelling is reasonable. However, civil unrest is less predictable and rarely confined to one location, which affects how it is modelled at a local, regional and national level. For example, RDSs recently developed by CHC Global and Howden Re highlight that how people engage in SRCC varies by geography.

In the US, riots have historically been preceded by peaceful protests at symbolic locations. Where unrest does occur, it is often concentrated in downtown areas with separate pockets in socioeconomically-deprived areas. A patchwork of commercial thoroughfares facilitates movement from one area to another.⁽¹⁸⁾

Conversely, in South Africa in 2021, civil unrest followed a more dispersed pattern, without an initial peaceful protest phase. Unrest developed across spatially distributed 'ink spots', where symbolism held little sway. Commercial premises near residential areas were targeted, with a concerted effort to hit food distribution networks across two major provinces.⁽¹⁹⁾

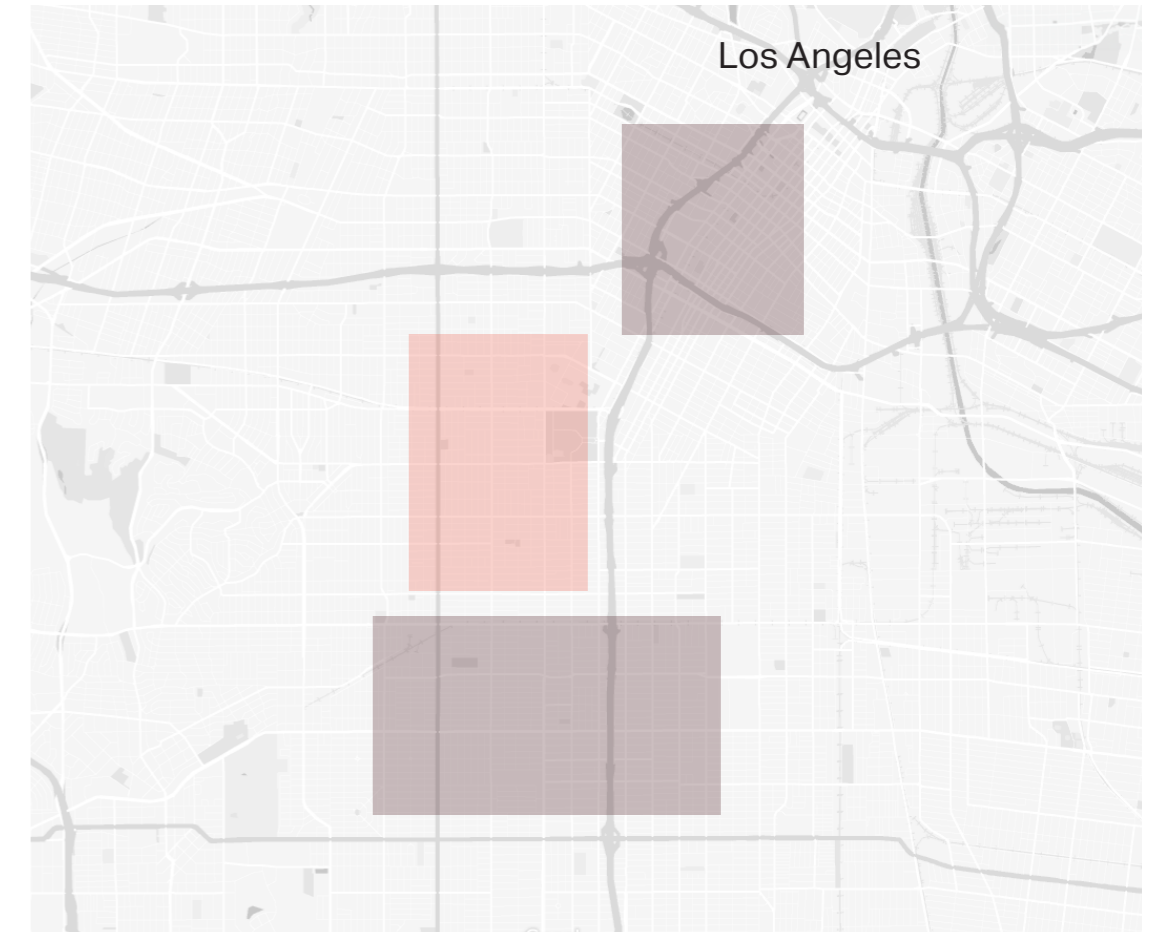
'Modelling' this kind of behaviour is as complex as the peril itself. For example, the motivation for a protest or bout of civil unrest will influence a group's meeting location and intended route, propensity for physical damage or disruption; types of infrastructure targeted; goals (e.g. to persuade governments or to simply cause disruption); and the relationship with, and response to police intervention. Unlike a conventional terror (bomb) scenario, riots do not operate in uniform 'blast zones'. Instead, they follow erratic and difficult to predict patterns, dependent on interactions between people and their environment. As such, modellers cannot take a 'one size fits all' approach when considering SRCC exposure and risk.

⁽¹⁸⁾ Source: CHC Global

⁽¹⁹⁾ Source: CHC Global

Figure 21: Example of two 'hotspots' located in downtown Los Angeles (LA) and in south LA, with a connecting 'corridor' expected to suffer less intense damage

Source: Sample of US RDS LA, Howden Re, CHC Global, Google Maps



SRCC events arise from several factors including, but not limited to, the increased role of social media as a platform for information and social organisation; controversial governance or abuse of power; resource scarcity and/or social or economic inequality. The global threat landscape has become more unpredictable, with recent adverse macroeconomic conditions, such as inflation and higher interest rates exacerbating existing inequalities.

Protests may centre on a symbolic location, acting as either a meeting point or destination. Therefore, the shape of a city matters. People tend to gather where there is space and move along roads which allow them to maintain force of numbers, momentum and confidence. This could be viewed as 'hotspots' linked by 'corridors'. Hotspots are sites targeted due to need, or greed (i.e. density of lootable shops) or symbolism (i.e. government buildings), and any immediate surrounding areas. Corridors are the links between hotspots e.g. main roads or side streets. If a group can move between designated hotspots undisrupted, then damage may be limited. If progress is contested, however, then more damage will likely occur. The risk profile of a building is therefore influenced by its proximity to these locations.

2.4

Duration and lead time



For terror, the spatial distribution and aggregation of risks are limited by attack method and threat group behaviour.

Terrorists typically focus on media sensationalism, loss of life, economic impact or infrastructure damage, dependent on their capability. Historically, there has been variation in target selection and methodology between terror groups (for example, Irish Republican Army vs Islamic State), but within 'terror styles' (e.g. violent Islamist extremism) there are fewer differences.⁽²⁰⁾

Terrorism does not lend itself to spontaneity and does not 'catch on' in the same way SRCC action does. Bombing campaigns have long lead times, and each instance is short lived. It takes time to construct an explosive device (i.e. VBIED) or conduct a Marauding Terror Attack (MTA). Threat actors also often need to recruit others to carry out an attack, all without being caught by law enforcement.

Mainstream news coverage, social media, and ease of transport, enable the rapid dissemination of information and short lead times to SRCC incidents. SRCC action can flare up quickly in response to inflammatory events (i.e. George Floyd, BLM). Information can be distributed instantly, creating a 'shared experience', with a convincing narrative for why people should protest in one country despite its origin in another. We saw this with 'Arab Spring', and recent conflict in the Middle East, where anti-war protests were sparked internationally (e.g., US, UK).

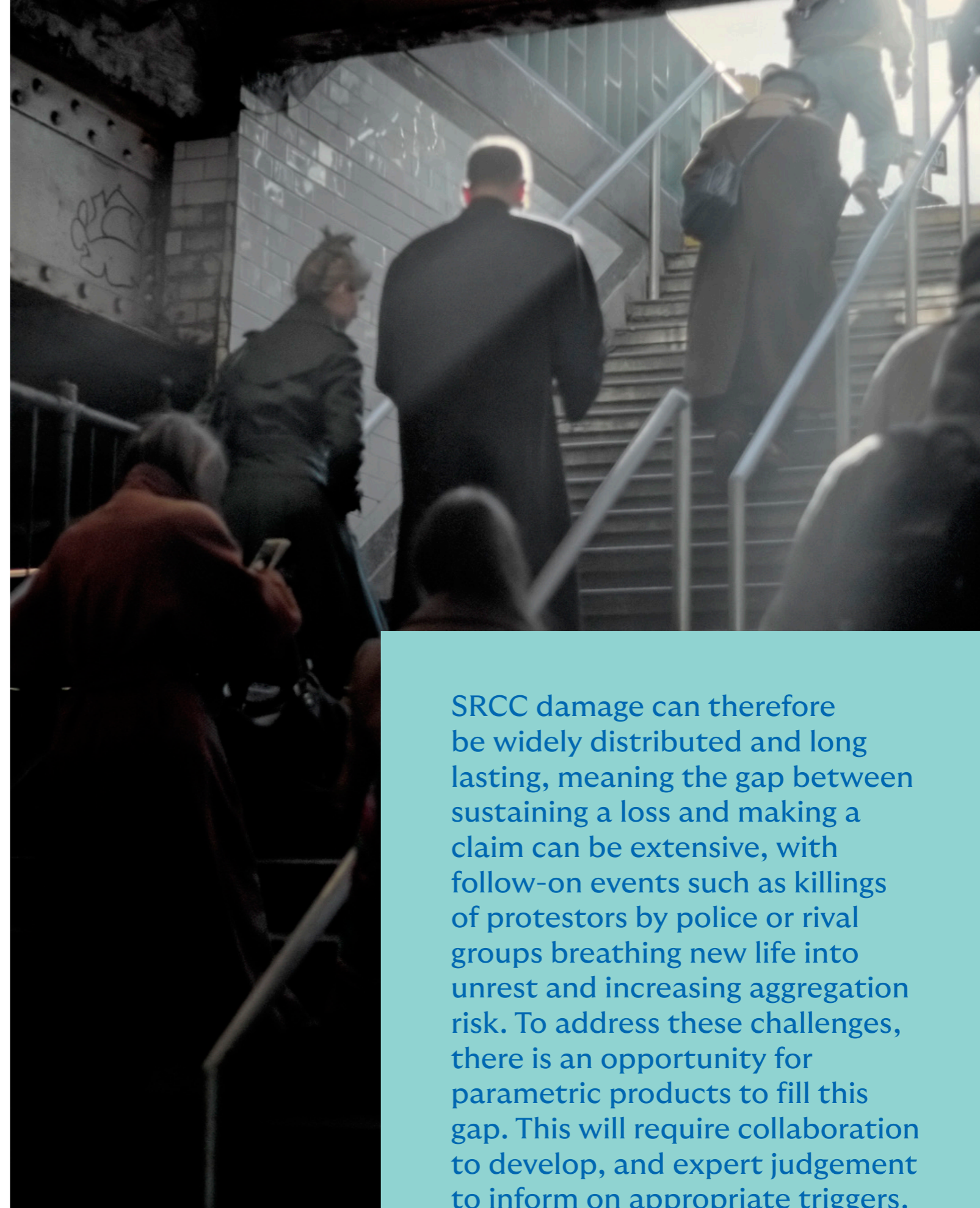
This dissemination effect can lead to civil unrest spreading between cities, with no significant barriers aside from police action or social stigma. For example, in 1992 the brutal attack of Rodney King by police, catalysed five days of riots in Los Angeles (LA). Despite the event's national coverage, the violence remained predominantly localised within the city. Today, similar events, including the killing of George Floyd, led to unrest across numerous cities and even internationally.

In a modern context, the drivers of SRCC are no longer siloed by geography;⁽²¹⁾ instead, they are increasingly interconnected, leading to activity spreading across cities, nations (e.g., Chile, 2019), and international borders (e.g., BLM, 2020). In such a volatile threat landscape insurers need to begin considering their aggregation at multiple geographic levels. Treaty RI contract limits, which standardly cover 'any one city' or a defined radius (e.g. max 20 miles), are becoming less 'fit for purpose' when locations thousands of miles apart can be impacted by the same 'spark'. This presents a significant concern when insurers can only recover or reinstate on one location (i.e. their largest loss), resulting in significant horizontal net exposure. If these restrictions persist, the market may be 'only one catastrophe away from complete dislocation',⁽²²⁾ heightening the need for multi-city clauses.

⁽²⁰⁾ Source: CHC Global

⁽²¹⁾ Howden. (2023, April). A World of Trouble.

⁽²²⁾ Howden. (2023, April). A World of Trouble. (Referencing James Hannan on pg. 35)



SRCC damage can therefore be widely distributed and long lasting, meaning the gap between sustaining a loss and making a claim can be extensive, with follow-on events such as killings of protestors by police or rival groups breathing new life into unrest and increasing aggregation risk. To address these challenges, there is an opportunity for parametric products to fill this gap. This will require collaboration to develop, and expert judgement to inform on appropriate triggers.

2.5

Managing mayhem:

a new SRCC framework

Howden Re recognises the need for a flexible and adaptive approach to the increasingly volatile SRCC risk landscape.

By leveraging expertise, both within our group and with external partners, we are committed to developing bespoke solutions to meet our clients' needs. For example, our PV framework and deterministic RDSs provide the flexibility to incorporate multi-class, multi-city coverage, long event durations and parametric triggers. As such, Howden Re can offer a comprehensive understanding of SRCC risk to our client's portfolios, helping to secure the best available coverage, whilst also enticing more capacity into the market.

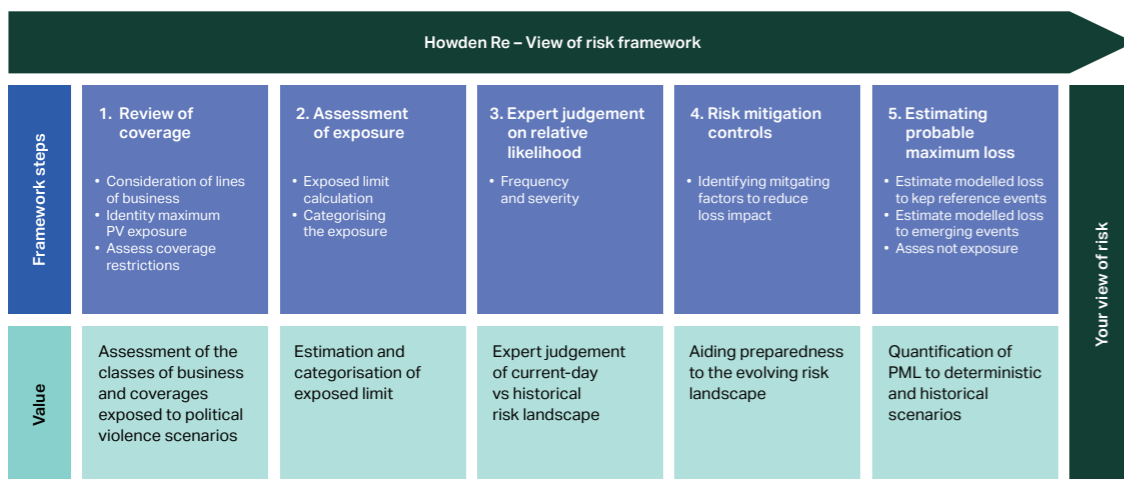
Assessing SRCC risk

Existing attempts to give predictive SRCC risk indices can be a good starting point for insight into regional or national level risk. It is commonplace for insurers to consider national-scale SRCC risk (i.e., a singular risk identifier for an entire country). However, the market is beginning to acknowledge that this isn't fit for purpose. Some insurers are now considering aggregation at a city level or are using 5-10 km grids. Yet, these can lack the granularity, variability, and intricacy needed to understand SRCC activity between and within cities (i.e. media penetration; relationships with government or police; city interconnectedness, cost of fuel, availability of public transport, etc.). This approach should be led by expert judgment, incorporating both historical data and a deep understanding of the drivers of unrest and how they impact damage distribution. Balancing granular quantitative and qualitative assessments is crucial to providing clients with the greatest insight into SRCC risk within highly uncertain systems.

Given the evolving nature of the peril, there is a need for a consistent and adaptable SRCC risk assessment framework. Howden Re addresses this need through five core strategic principles (Figure 22). This approach comprehensively considers factors affecting SRCC risk, including collaborative, bespoke, granular, and case-specific RDSs. Closely aligned with an exposure management approach, this framework refocuses the lens on susceptibility, instead of simply generating probable maximum losses. Similar efforts have recently been made by Lloyd's to build out syndicate-specific scenarios for speciality lines, including marine and aviation collision.

Figure 22: Howden Re's political violence risk assessment framework

Source: Howden Re



RDSs may incorporate spatial boundaries for exposed risks, levels of hazard exposure, the target motivation (i.e. symbolism, activism, greed), damageability of that exposure, and a narrative around any potential trigger(s). The Howden Re and CHC co-produced RDSs offer a new, multifaceted approach that can be adapted for use across multiple classes and allow clients to develop their own damage assessments, ultimately moving away from the more traditional and commoditised view of risk typically seen in the market. This will specifically help identify accumulations at a country level to consider the use of facultative RI and reflect on existing arrangements.

Howden Re's framework balances consistent historical reference points and a dynamic threat-driven approach. Generating granular high-risk zones (spatial areas) allows for underwriters to determine their appetite, and for SRCC to be written to full limit where there is capacity to do so. Clients can then differentiate their portfolios based on zone risk profiles.

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As SRCC's changeability means that risk frequently shifts regionally and temporally; a beautifully diversified portfolio is the only way to protect against tomorrow's threat landscape.

Reserves

at risk:



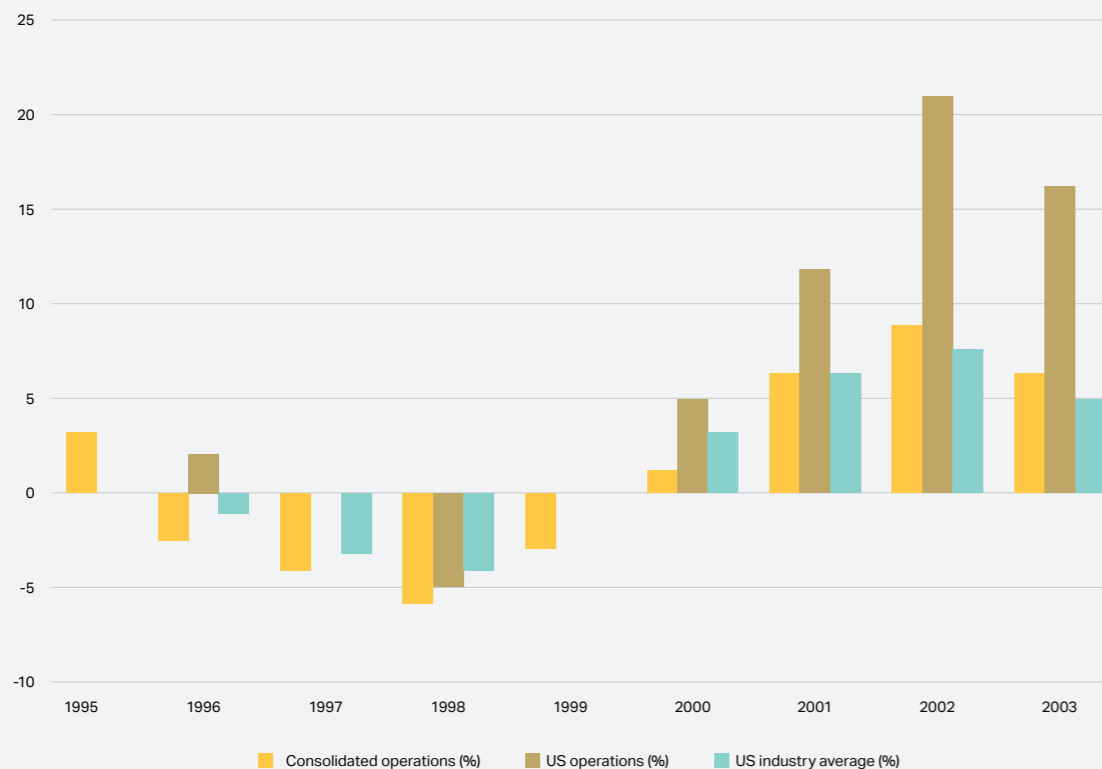
the casualty conundrum

Against the backdrop of increasingly frequent and severe 'non-peak' natural and manmade catastrophes and their associated impact on future losses, underwriters are simultaneously grappling with concerns about adverse loss experience from the past, particularly regarding the adequacy of casualty reserves. In the post-COVID-19 era of volatile inflation, (re)insurers have been vocal advocates for price increases in casualty lines to offset adverse development stemming from accident years 2014-2019. The convergence of higher repair costs, legal fees, healthcare expenses, increased 'nuclear verdicts' and social inflation have all contributed to recent calendar-year claims experience.

(Re)insurer apprehension is fuelled, in part, by memories of the late 1990s and early 2000s liability crisis when underwriters collectively realised that reserve positions, and therefore pricing, in various long-tail liability lines, had been inadequate. This realisation led to rapid reserve strengthening and price increases across the industry, with cumulative price increases ranging from 70% to over 100% in US commercial lines. During the liability crisis, estimated global reserve strengthening totalled approximately US\$ 300 bn in real terms for accident years 1997-2002 a much larger 'loss' than any single natural or manmade catastrophe to date.

Given that losses emanated largely from the United States, European carriers with operations there were disproportionately affected. Figure 23 illustrates the impact of reserve movements on quoted European carriers' loss ratios from their US operations between 2000 and 2003. It shows that in 2002, European insurers experienced an additional 20 percentage points of adverse loss ratio development in the US, which, as with US carrier losses, dramatically reduced worldwide profitability and, for some, threatened capital adequacy.

Figure 23: Impact of reserve movements on quoted European carriers' calendar year loss ratios during the liability crisis
Source: NOVA, Bloomberg data, US Bureau of Labor Statistics

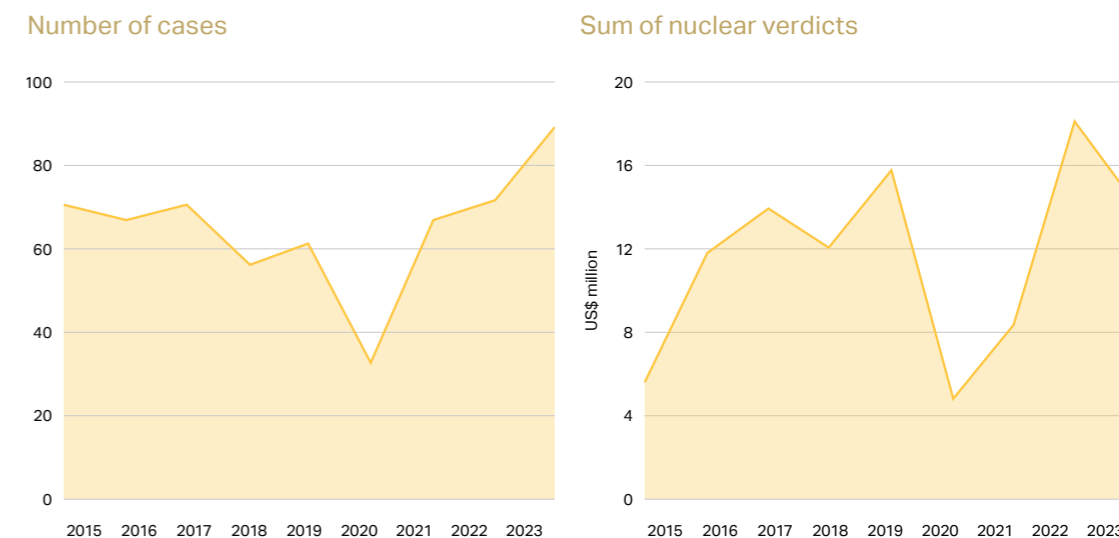


Today's concerns over adverse development differ from those of the liability crisis but bear similar hallmarks. 'Nuclear verdicts', which featured heavily in the early 2000s, are again on the rise in the US. Figure 24 shows that apart from a temporary COVID reprieve when many US courts closed or operated with reduced capacity, the number of cases and sum of verdicts more than US\$ 10 million have all increased over most of the last decade. To make matters worse, litigation financing has reached record levels with US\$ 15.2 billion in assets allocated to US commercial litigation investments.⁽²³⁾ Insurers should closely monitor settlement patterns and adjust their reserving practices accordingly.

⁽²³⁾ Source: Westfleet Advisors, Howden. (2024, January). A New World.

“
Maintaining a reserve cushion is essential to adapt to evolving market conditions, especially in the face of ongoing inflation and social inflation pressures.

Figure 24: US 'nuclear verdicts'
Source: Marathon Strategies



At least two crucial distinctions differentiate what happened during the liability crisis and what is happening now. The first is that the liability crisis occurred in an environment of falling consumer prices (Figure 25). This meant that adverse development stemmed from factors other than structural inflation. The second is that during the liability crisis, both pricing and first year percent incurred but not reported (IBNR) levels lagged adverse claims experience. As Figures 26 and 27 show, it wasn't until 2002 that remediations were implemented, which was not soon enough to prevent the crisis that, by then, was already in full force.

Figure 25: US and Eurozone inflation rates 1988-2004

Source: Bloomberg data

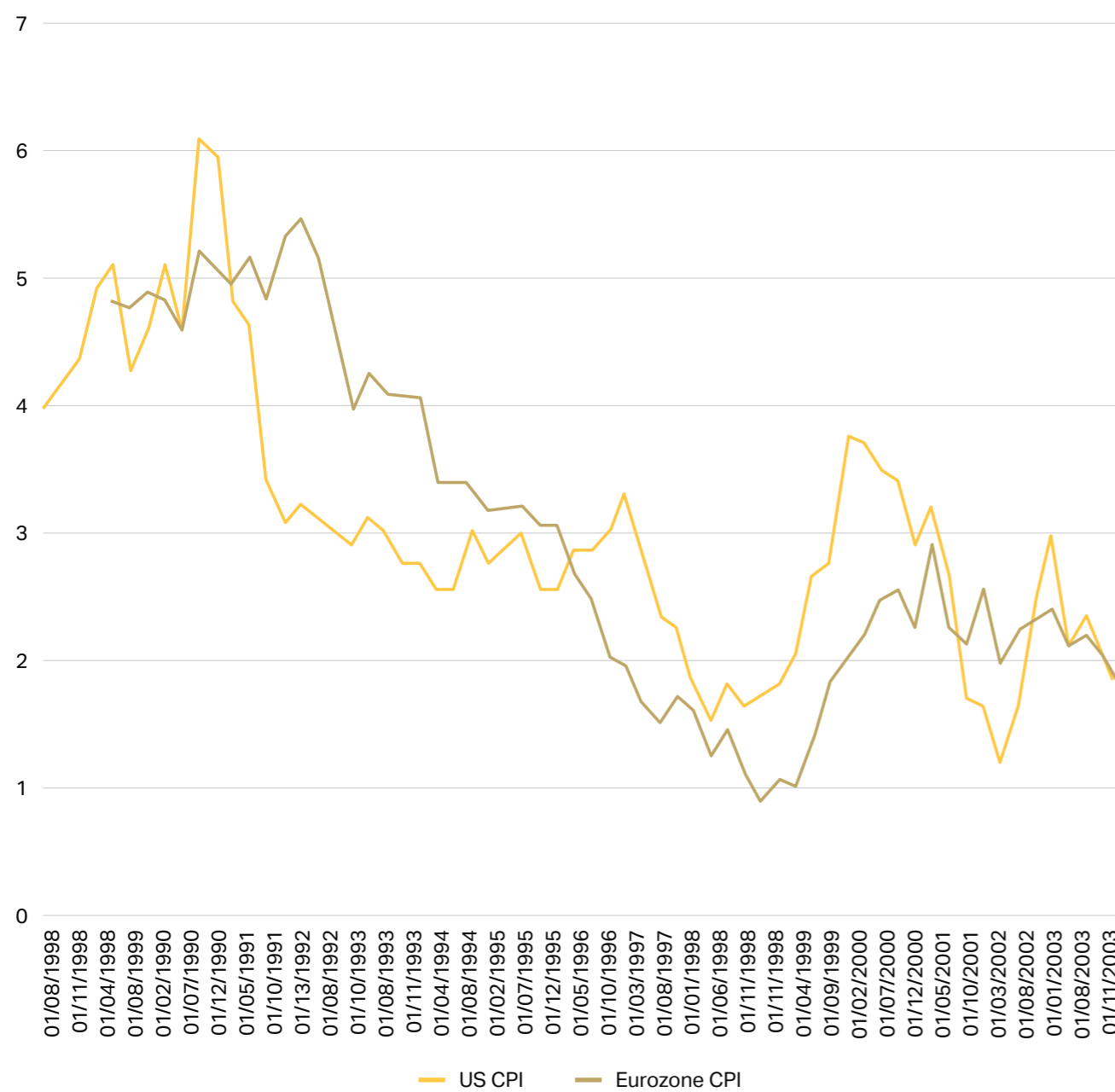


Figure 26: Global commercial lines pricing indices 2000-2007

Source: Nova

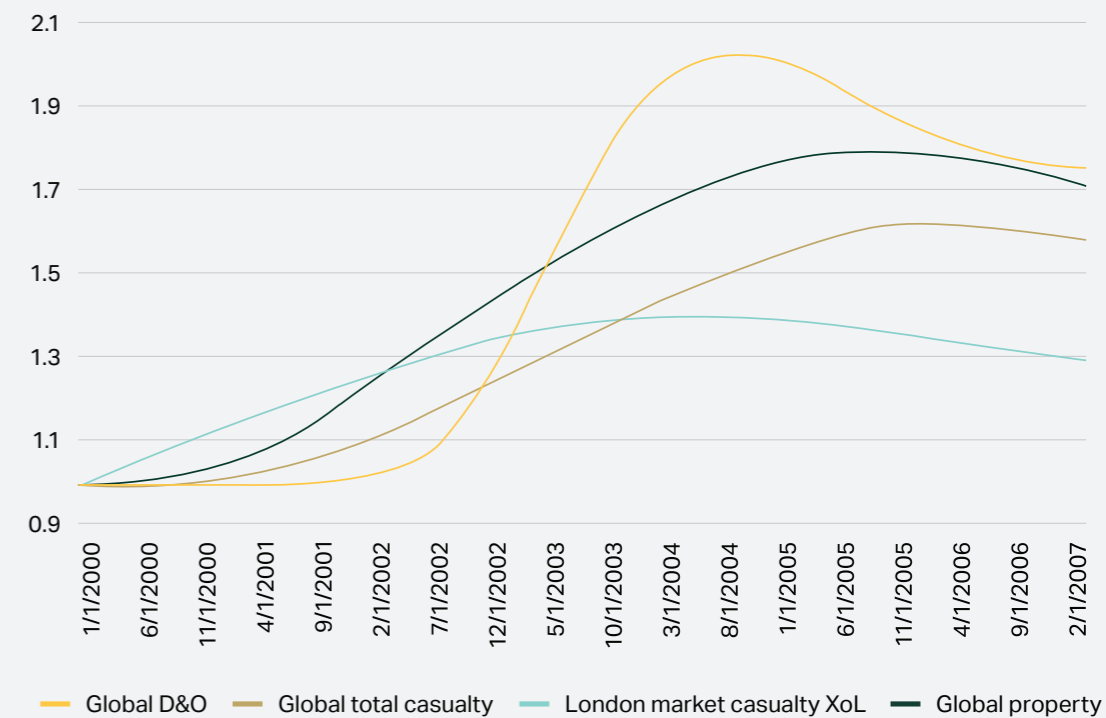
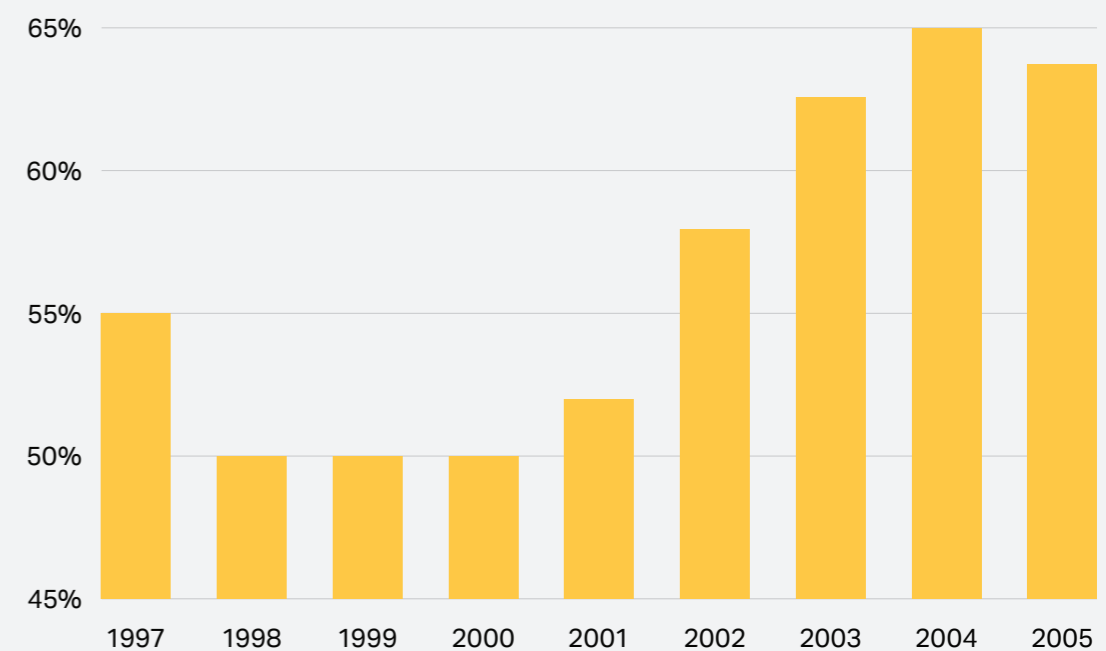


Figure 27: General liability first year % IBNR levels 1997-2005

Source: Nova



One significant cause of claims was asbestosis and mesothelioma deaths affecting workers' compensation (WC) business as families and affected individuals sought redress from corporations. A combined visual of death rates, industry reserve positions, and accident year (AY) development, reveals a clear picture. Between 1979 and 2001, asbestosis deaths alone surged by over 650% (Figure 28), leading to a substantial increase in WC losses for insurers (Figure 29), and significant reserve strengthening in the aftermath to offset negative results.

Figure 28: Annual US mesothelioma and asbestosis deaths (LHS) and subsequent reserve positions (RHS) (US\$ billions)

Source: EWG Action Fund. CDC, NCHS, multiple cause of death file 1979-2001 (LHS); Nova (RHS)

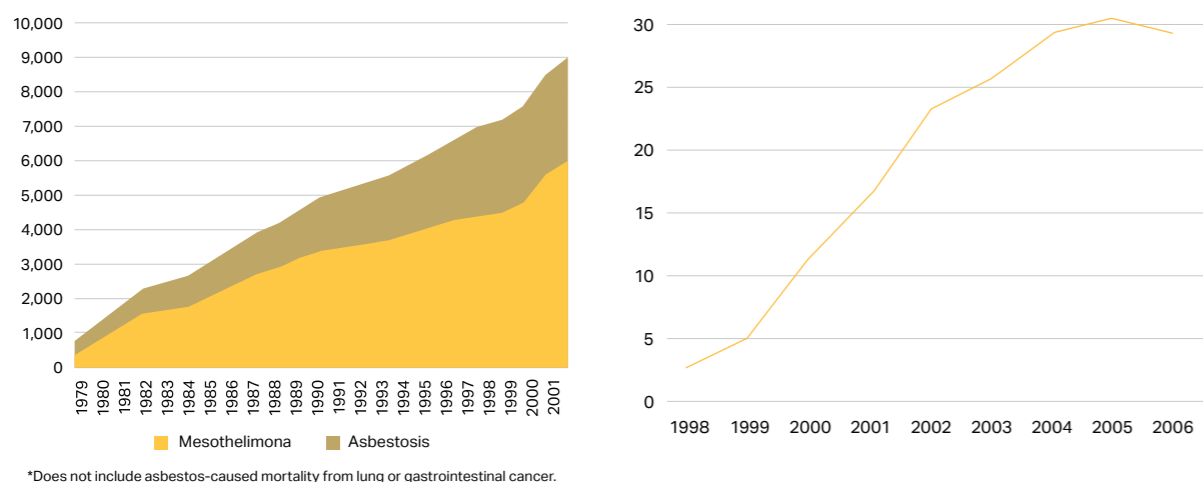
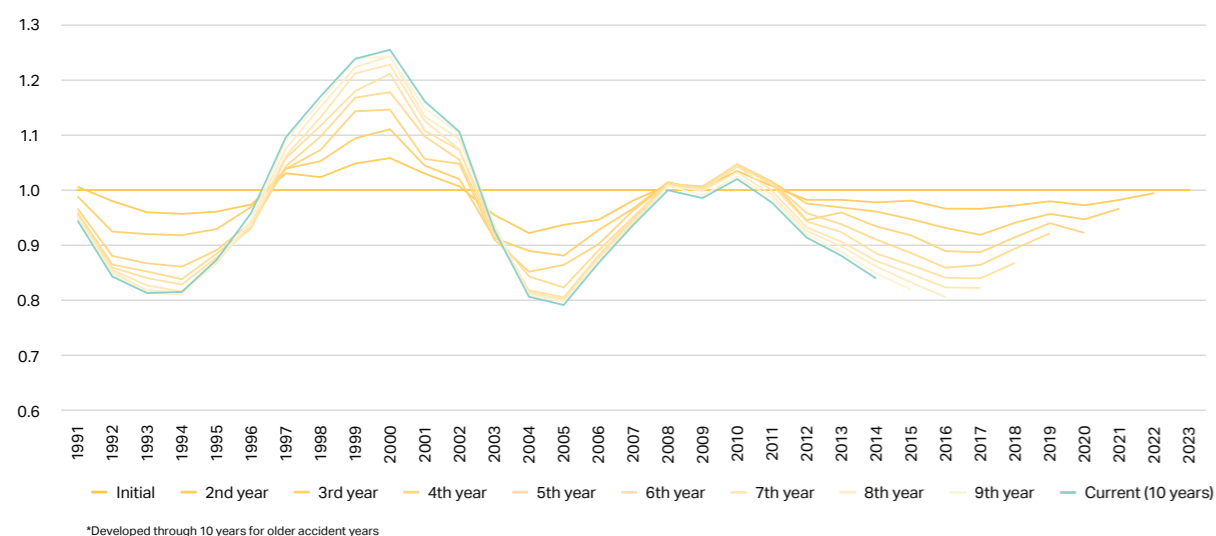


Figure 29: Historical workers' compensation accident year development indexed to the initial pick

Source: Howden Re, US statutory filings

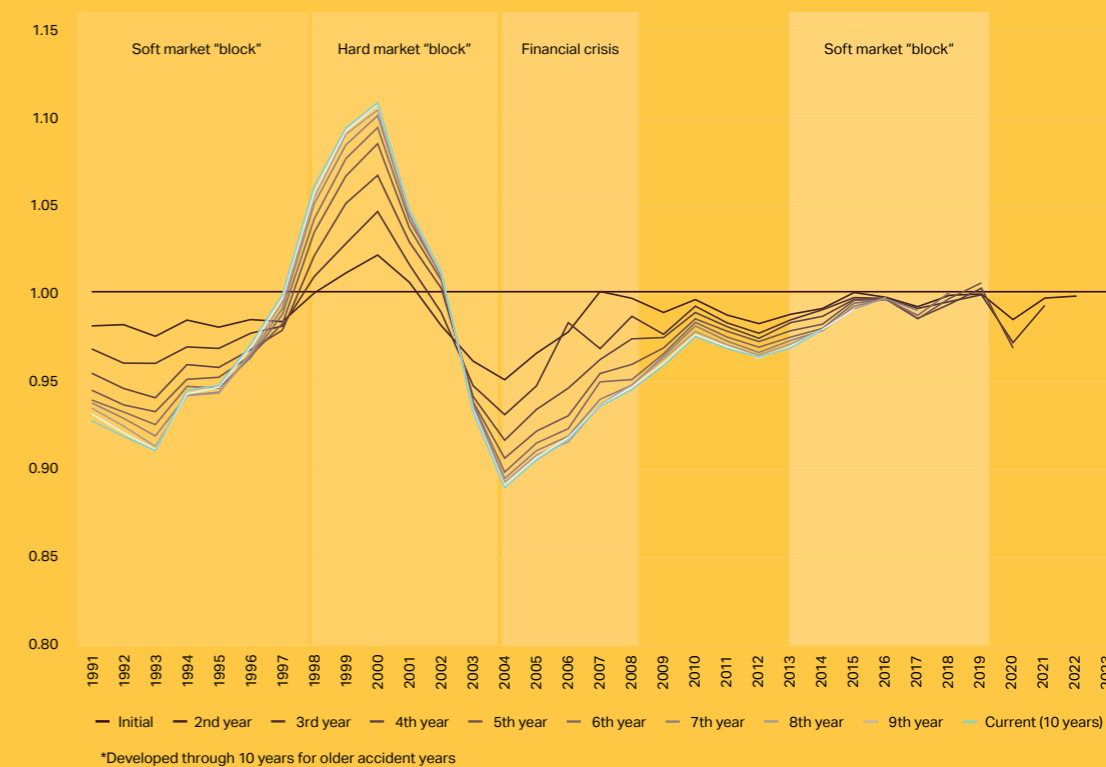


By contrast, an analysis of today's market environment reveals different factors to those of the early 2000s. Figure 30 shows historical AY development across all US lines-of-business. This analysis is US-focused as data there provide the largest, most granular breakdown of reserve development.

With exceptions, reserving developed mostly favourably by AY from the end of the liability crisis until around AY 2014 but losses have since crept-up in key lines-of-business. This time, workers' compensation (WC) lines are performing well and are, in fact, masking underperformance in general liability (GL) lines. Insurers with larger WC books may release more reserves than others, providing buffers against adverse developments in GL lines. Insurers are currently reassessing portfolio mix and endeavouring to increase exposure to better performing lines, while adopting more granular reserving strategies that reflect the varying risk levels across different casualty lines.

Figure 30: Historical all lines accident year development indexed to the initial pick

Source: Howden Re, US statutory filings



In fact, recent years have also seen re-underwriting efforts with reduced limits, increased attachments and a shift in industry mix, coupled with a push for rate adequacy. Continued re-underwriting and rate adequacy initiatives are crucial to managing casualty risks. Insurers should revisit policy terms, reduce exposures in higher-risk areas, and ensure that pricing reflects the current risk environment. These efforts will help mitigate earnings volatility and ensure that reserves are sufficient to cover future claims.

The performance disparities of various casualty lines require experienced intermediaries to navigate the challenging market. Specialised brokers play a key role in helping insurers find innovative reinsurance solutions, particularly in difficult lines like GL. This can assist in negotiating better terms, identifying alternative risk transfer mechanisms, and securing capacity in a tight market. Collaboration with brokers who have deep expertise in casualty lines is essential for insurers looking to manage their exposure effectively.

3.1

Emerging risks and impacts

While liability claims are not yet outpacing redundancies in other areas, industry concern is warranted. There are several emerging risks that could exacerbate deterioration in various liability lines.

Persistent pollutants: confronting the PFAS dilemma

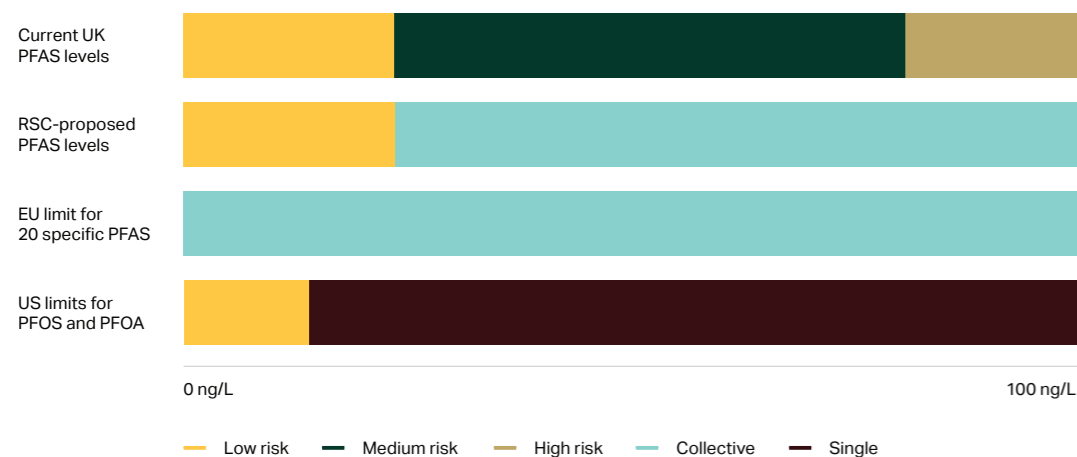
One is perfluoroalkyl and polyfluoroalkyl substances (PFAS), a large and complex group of synthetic chemicals, colloquially known as ‘forever chemicals’ used in common products since the 1940s. These include nonstick cookware, water-repellent clothing, stain resistant fabrics, cosmetics, firefighting foams, and cleaning products that resist grease, water and oil.

PFAS are constituted of incredibly strong chemical bonds which degrade slowly in the body or in nature, taking up to a thousand years to decompose.⁽²⁴⁾ People are not only exposed to these chemicals through products that contain them, but can also absorb them through PFAS contaminated air, water, and food.⁽²⁵⁾ In the UK, recent tests found that 35% to 37% of English water sources contained medium to high levels of PFAS.⁽²⁶⁾ Although PFAS can be filtered out of drinking water, water companies in the UK are not legally required to do so until the risk levels reach the ‘high’ threshold.⁽²⁷⁾ This is a concern because current UK standards allow PFAS levels up to ten times higher than the ‘low risk’ level for individual PFAS chemicals, of which there are hundreds of variations. Additionally, there is no current limit on the total concentration of all PFAS chemicals combined.⁽²⁸⁾

In contrast, the US has implemented a new cap of 4 nanograms per liter (ng/L) on each PFAS chemical found in water, and the EU sets a combined limit of 100 (ng/L) for all PFAS chemicals (Figure 31).

Figure 31: Acceptable levels of PFAS in water by geography

Source: Royal Society of Chemistry



⁽²⁴⁾ Source: National Institute of Environmental Health Sciences (NIH). Perfluoroalkyl and Polyfluoroalkyl Substances (PFAS).

⁽²⁵⁾ Source: Agency for Toxic Substances and Disease Registry (ATSDR). Per- and Polyfluoroalkyl Substances (PFAS) and Your Health. What are the health effects of PFAS?

⁽²⁶⁾ Source: Verisk. (2024, April). PFAS Litigation Could Generate Billions in Ground-Up Losses. Here's How.

⁽²⁷⁾ Source: National Institute of Environmental Health Sciences (NIH). Perfluoroalkyl and Polyfluoroalkyl Substances (PFAS).

⁽²⁸⁾ Source: Royal Society of Chemistry. Cleaning up UK drinking water.

While the long-term implications of PFAS exposures are not fully known, it is accepted that PFAS build up in the blood stream can lead to a wide array of adverse health effects including but not limited to, fluctuations in cholesterol, changes in liver enzymes, birth defects, pregnancy induced hypertension and preeclampsia, kidney and testicular cancer and lower antibody response to vaccines.⁽²⁹⁾

In the US, PFAS litigation has resulted in significant financial losses, with settlements related to PFAS contamination estimated to have already reached US\$ 18 billion.⁽³⁰⁾ According to Verisk, PFAS litigation could extend beyond US\$ 100 billion (between US\$ 120 billion and US\$ 165 billion) depending on how PFAS contamination evolves.⁽³¹⁾ Outside of the United States, PFAS litigation has been slower to gain traction but is nevertheless increasing. Multiple court cases across the globe have, or will, set precedence for PFAS contamination management, including cases in Belgium €571 million settlement (2022); Australia A\$ 132 million settlement (2023); and ongoing court cases in France and Sweden.⁽³²⁾

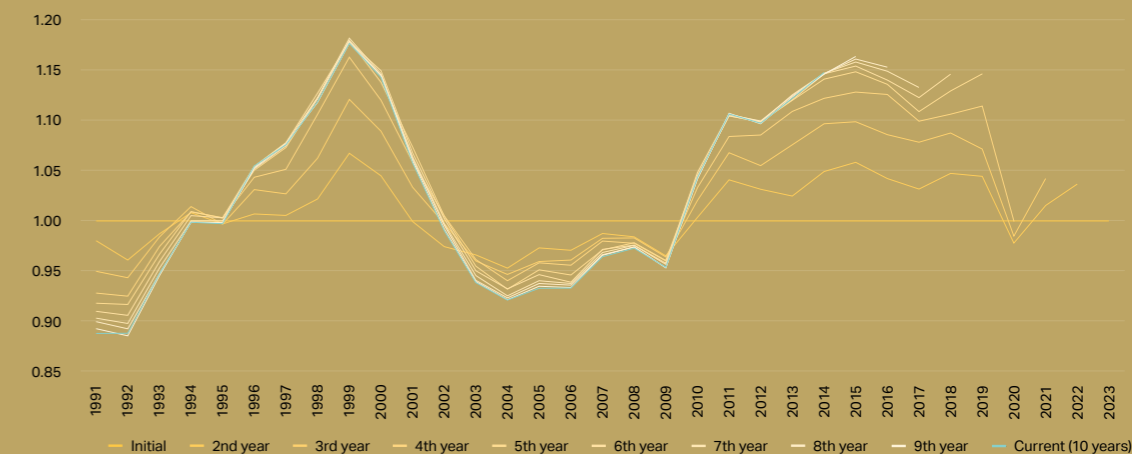
PFAS is therefore a global issue that could significantly impact the (re)insurance industry as PFAS-related litigation continues to rise. In particular, the chemicals are a concern to (re)insurers because they can impact multiple liability lines, including GL, environmental liability, directors and officers (D&O), WC, property, health, and product liability.

Shifting gears: implications of new motor market trends

Another emerging casualty concern is structural changes occurring in the motor market and their potential impact on commercial auto, personal auto, and product liability. Commercial auto liability is one of the lines with the most significant recent adverse AY development (Figure 32).

Figure 32: Historical commercial auto liability AY development indexed to the initial pick

Source: Howden Re, US statutory filings



⁽²⁹⁾ Source: Agency for Toxic Substances and Disease Registry (ATSDR). Per- and Polyfluoroalkyl Substances (PFAS) and Your Health. What are the health effects of PFAS?

⁽³⁰⁾ Source: Verisk. (2024, April). PFAS Litigation Could Generate Billions in Ground-Up Losses. Here's How.

⁽³¹⁾ Source: Verisk. (2024, April). PFAS Litigation Could Generate Billions in Ground-Up Losses. Here's How.

⁽³²⁾ Source RPC. (2023, June). What's next for PFAS litigation?

Adverse loss experience from past accident years has been driven by increased materials costs due to inflation, supply chain bottlenecks, and rising medical expenses.

Looking ahead, loss experience in motor liability lines could also be affected by underlying changes in the way people drive, such as the increased adoption of autonomous vehicles (AVs).

Of the US\$ 4-4.5 trillion of global P&C premium, about 35%-40% comprises motor.⁽³³⁾ Therefore, volatility in the motor market can have a significant impact on (re)insurers' P&C performance more broadly. The motor industry is currently going through a period of immense change. McKinsey research estimates that, 'by 2030, roughly half of new vehicles will be electric, nearly all new vehicles will be connected, and some (maybe one in six) will have Level 3+ autonomous-driving capabilities such as self-driving without constant human supervision.'⁽³⁴⁾

As AVs replace human drivers with artificial intelligence, they aim to minimise road accidents caused by distracted individuals (ie. drunk drivers, drivers on their phones, overtired drivers, those who speed), or natural and unavoidable human errors, (ie. misinterpreting road signals). However, for the foreseeable future, driving will be a hybrid system where both human-driven vehicles and AVs share the road. In such a system, AVs cannot eliminate accidents altogether as the AI that controls them operate on assumptions that are occasionally incorrect.⁽³⁵⁾

AVs complicate the accident and claims landscape by making it more challenging to determine responsibility. In a scenario involving only human drivers, it is often clear who is at fault. However, in a hybrid system with both human-driven vehicles and AVs, it becomes difficult to ascertain whether a crash was caused by a technology malfunction or human error. Since advanced AVs replace human drivers, liability could shift to the vehicle's technology, prompting a transition from personal motor insurance to product liability insurance.⁽³⁶⁾ Furthermore, if an AV is carrying a passenger, both the passenger and the driver of the other vehicle involved in the accident may file claims against the car's technology/manufacture, potentially increasing the costs associated with accidents.⁽³⁷⁾

At the same time, because AVs are in the early stages of adoption, their regulation is nascent. While legislation is emerging to accommodate the increasing number of AVs on the road, it is likely that the volume and complexity of litigation involving vehicle manufacturers, software companies, suppliers and mapping agencies will increase as determining which component of the vehicle is at fault will be difficult.⁽³⁸⁾

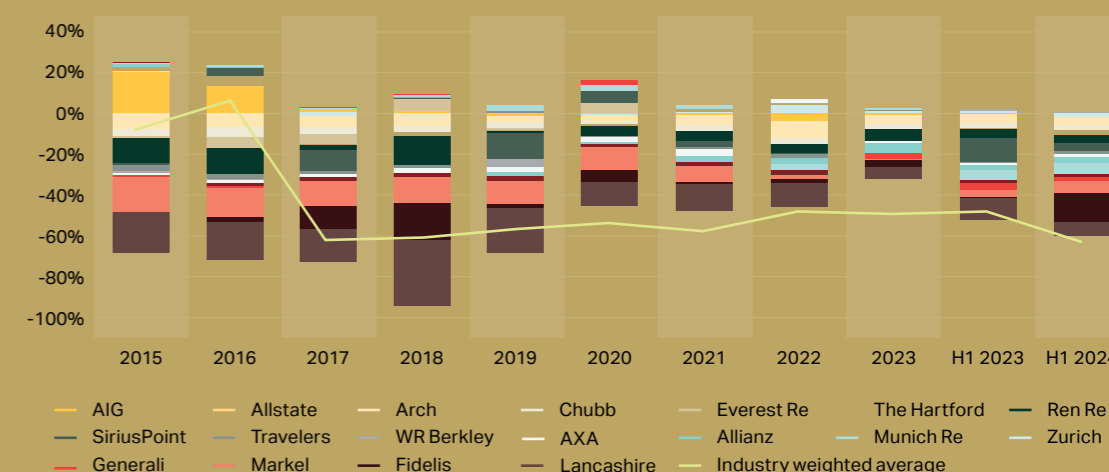
As these cases go to court, their decisions could have a major impact on motor liability insurance. Depending on their outcomes, it may require more robust reserving strategies to account for potential variations in claims going forward.

⁽³³⁾ Source: Nova
⁽³⁴⁾ Source: McKinsey. (2024, April). Navigating unknowns: Auto insurance questions in a new mobility era.
⁽³⁵⁾ Source: Shu Li and Michael Faure. (2022, February). Insurance and legal-economic environment wider and narrower framework: Proceedings (Vol. 23, pp. 108-119). Motor Liability Insurance in a World with Autonomous Vehicles.
⁽³⁶⁾ Source: Katie Atkinson. (2020, January.) Scripted: A Journal of Law, Technology and Society: (Volume 17, Issue 1). Autonomous cars: A driving force for change in motor liability and insurance.
⁽³⁷⁾ Source: Zurich Insurance Group. Driverless vehicles and the future of motor insurance.
⁽³⁸⁾ Source: Katie Atkinson. (2020, January.) Scripted: A Journal of Law, Technology and Society: (Volume 17, Issue 1). Autonomous cars: A driving force for change in motor liability and insurance.

Reserving resilience: mitigating casualty concerns

PFAS contamination and product liability concerns in the motor market are two emerging trends that may impact (re)insurers' future loss experience. However, an analysis of industry-wide reserve positions at present (Figure 33) still reveals calendar year redundancies across the board, with all carriers in the composite below releasing reserves in the first half. Falling inflation and fewer natural catastrophe losses contributed to favourable development in H1. While reserving trends are currently affecting earnings positively. Shifting conditions in various lines could alter this narrative over time.

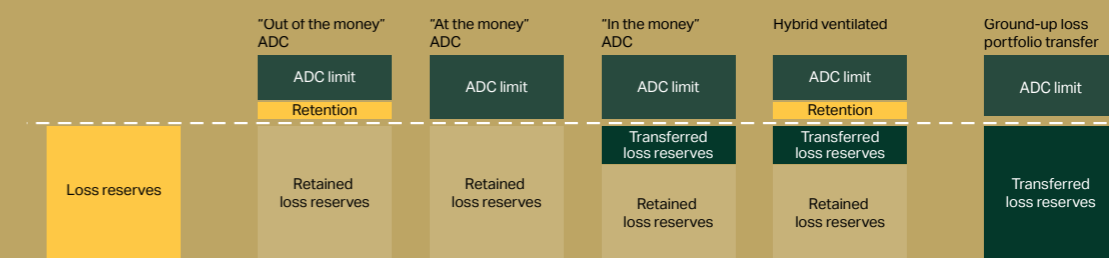
Figure 33: Prior year development (PYD) and weighted PYD ratio 2015-H1 2024
 Source: Nova




For carriers experiencing unfavourable reserve development, there are options to provide capital relief. Legacy solutions can benefit both insurers and reinsurers. For cedents, legacy solutions free up capital that can be redeployed into more profitable lines, reduce portfolio volatility, and enhance financial strength. For reinsurers, legacy transactions can diversify their portfolios, which may further reduce their cost of capital.

There are multiple coverage structures for retrospective liability transactions. However, the most common is a ground-up Loss Portfolio Transfer (LPT), where the reinsurer assumes responsibility for the entire portfolio of losses (from day 1) including reported and unreported claims. The cedent typically pays a premium to the reinsurer to do so, calculated on the estimated liabilities and the reinsurer's assessment of the risk associated with the portfolio.

Figure 34: Retrospective coverage structures
 Source: Howden Re





Conclusion: navigating the future through collaboration and innovation

As the global (re)insurance landscape evolves, the complexities of risk have never been greater.

This is notably evident outside of the US where European flooding and severe convective storms have driven cat loss ratios to their highest levels since 2019; SRCC losses such as the circa. US\$ 1 billion loss in New Caledonia have highlighted the broadening scope of SRCC risk; emerging international litigation for PFAS and AV related claims reveal that casualty risk extends beyond increased nuclear verdicts in the US.

The challenges outlined in this report from increasing natural catastrophe losses to the shifting dynamics of casualty reserves require a proactive, innovative approach. Howden Re is uniquely positioned to meet these challenges by leveraging its extensive expertise within the industry. The integrated approach, combining reinsurance expertise, strategic advisory, and deep market insights, enables the development of tailored solutions that not only address today's risks but also anticipate tomorrow's challenges.

At the heart of this report lies a simple but powerful message: the future of risk management depends on collaboration. Whether it is working together to understand the evolving nature of natural and manmade catastrophes, navigating the complexities of the casualty market, or addressing emerging risks such as PFAS and autonomous vehicles, the need for combined efforts between brokers, reinsurers, capital providers and clients has never been more critical.

Howden Re is not just another intermediary. It leads the collaborative effort required to face these challenges. The ability to integrate the world's largest P&C-focussed investment bank with reinsurance and strategic advisory teams uniquely positions Howden Re to provide solutions that are comprehensive, innovative, and effective. Capacity must be brought to market in a way that balances risk and reward for all parties involved, and Howden Re is committed to leading this effort.

As the next phase of the reinsurance cycle begins, the importance of resilience, innovation and partnership cannot be overstated. Howden Re stands at the forefront of these efforts, providing the expertise and resources needed to navigate the increasingly complex global risk landscape.

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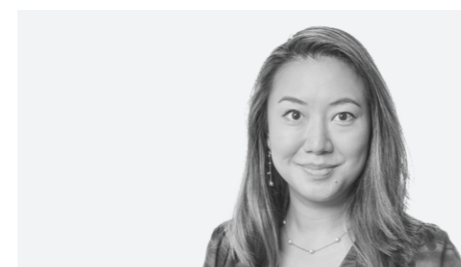
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