Artex

THE EVOLUTION OF RISK: PROBABILITY VERSUS IMPACT

Key focus points from ‘Insuring the Future’, a roundtable discussion hosted by Artex in association with Airmic.

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OVERVIEW

The world, and consequently how we view risk and its impact on business, is changing at a significant and unprecedented pace.

This whitepaper discusses the evolving nature of risk management, emphasising the increasing role of alternative risk financing and captives in understanding and managing complex risks. It highlights the challenges posed by the rise in climate litigation and cyber-attacks, stressing the importance of having robust incident response plans and the use of alternative data sources for better risk insight. Additionally, it discusses the benefits of parametric insurance and captive insurance vehicles in providing financial protection and building resilience against the impact of natural catastrophes on global supply chains and cyber threats beyond our existing understanding of the underlying risks.

Traditional insurance remains a core risk mitigant and control, but evolving risk and the lack of established historic data to model and price risk create a void such that businesses are more and more looking to alternative tools to fill, and from which they can build a more resilient risk management toolkit.

The increasing role of academic research and the development of new tools and models are being used to create the insight necessary to horizon scan and develop realistic risk scenarios. As such, businesses are becoming better at understanding the probability of specific risk events.

This paper identifies the need for better risk insight and shows that alternative risk financing and risk management have an increasing role to play for businesses.

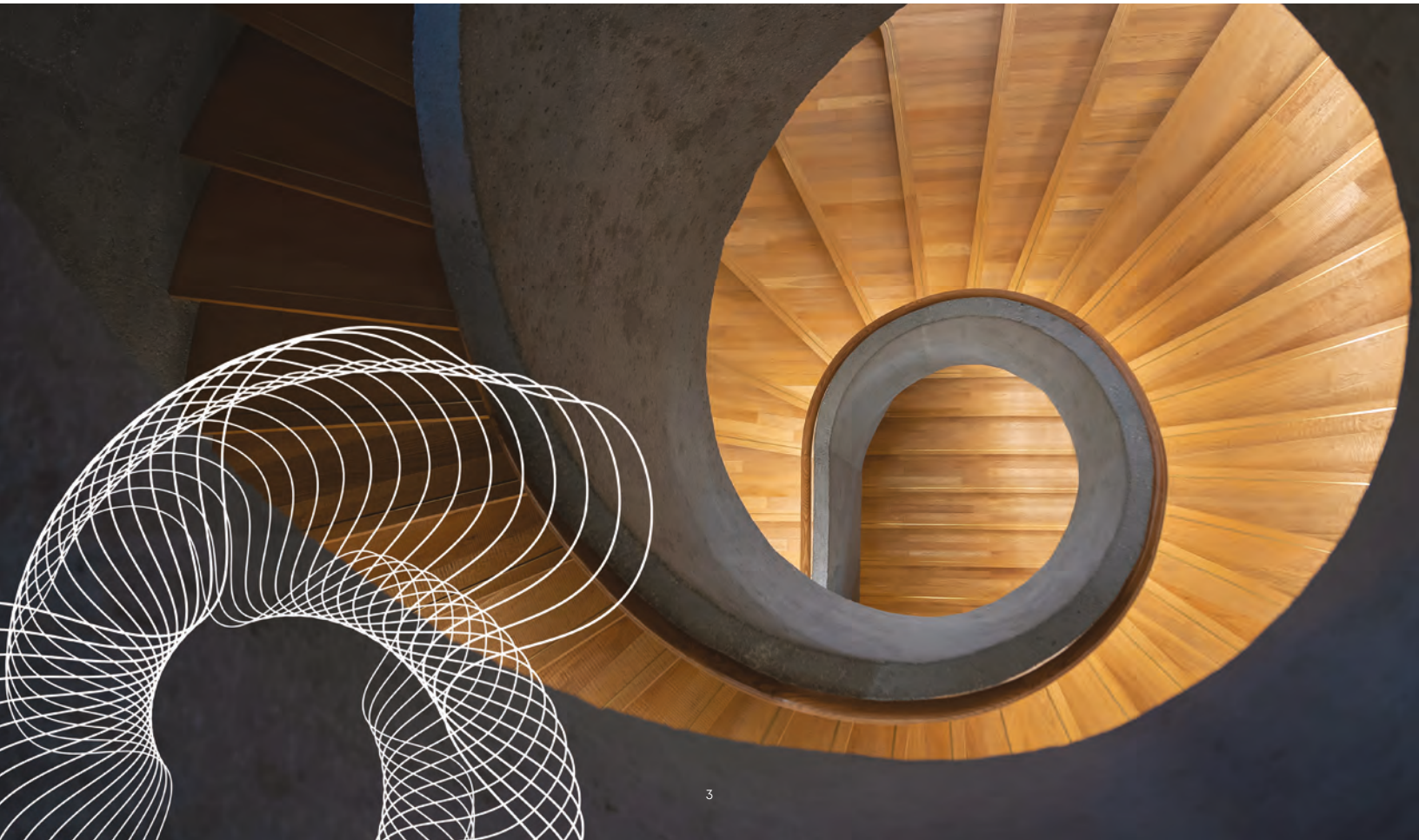
> **The research conducted with the Grantham Research Institute not only helps clients understand the diverse range of climate litigation scenarios company directors and officers face, but for the first time we can actually quantify that risk.**
>
> — Dr. Iain Willis
> Research Director
> Gallagher Research Centre

Part One

How boardrooms are being impacted by climate litigation.

Climate litigation is increasingly impacting boardrooms as organisations face rising legal challenges related to climate change. The number of climate litigation cases has surged, with over 70% occurring since 2015[1], driven by regulatory pressures and the pursuit of net-zero goals. These cases span an increasing number of industries outside of natural resources, including travel, agriculture, automotive, aerospace, and finance, and often involve issues like 'climate washing' and supply chain liabilities. With over 3,000 climate laws and policies in place, non-compliance invites legal scrutiny.

[1] "Climate Litigation Against Companies Is on the Rise, Report Finds," *Grantham Research Institute on Climate Change and the Environment*, 27 Jun 2024.



INSURERS ARE BENCHMARKING CLIMATE EXPOSURE TO BETTER ASSESS INSURED RISK

Climate research is proving invaluable in forming data-led climate risk scenarios that can be used by insurers for industry benchmarking, helping them understand the key drivers of exposure and how they compare to their peers.

Based on the Grantham Research Institute scenarios, up to 25% of the insured value in a typical US insurance carrier's D&O portfolio comes from companies with potential exposure to climate-related litigation. Global insurance carriers are also at risk, demonstrating an exposure of less than 10%. The Gallagher Research Centre identified the top two scenarios in terms of exposure as being class actions for disclosures and greenwashing scenarios.

CASE STUDY

FROM NON-DISCLOSURE TO EXPOSURE

A case study scenario presented by the Grantham Research Institute on climate change and the environment, in partnership with Gallagher.

A publicly traded, carbon-intensive commodities producer has its main production site in a known flood-prone area. Despite the heightened risks posed by climate change, the company had not developed or implemented any climate-related risk identification and management measures or made any public disclosures about its exposure to climate-related risks — until it became a requirement by the US Securities and Exchange Commission (SEC).

When these disclosures became public, lenders began to restrict the company's credit conditions given its heightened risk profile, and the firm's share price decreased substantially. This led to securities litigation, derivative actions and employee actions, underscoring the importance of understanding and managing climate risks, as well as the potential for significant financial and reputational losses.

HOW GREEN DO YOU THINK YOU ARE?

While many organisations believe themselves to have a good understanding of their climate responsibilities, this is far from reality. With climate litigation one of the most rapidly expanding areas of litigation, directors must not be complacent about their organisation's climate exposure because the potential financial and reputational losses can be substantial. As the known climate risks escalate and the 'unknowns' evolve, risk management strategies for climate exposure must remain at the top of every board's agenda.

THE CASE FOR CAPTIVES

In response to increasing climate risks highlighted by legislation, alternative risk transfer strategies are becoming more prevalent. Companies are increasingly using captives and related risk retention vehicles to manage less traditional, low-frequency, high-severity risks like extreme weather. This approach aids businesses in collecting data, optimising the balance between risk transfer and retention, and accessing alternative capital sources.

Part Two

How you manage a cyber attack influences your ability to successfully continue business afterwards.

The UK government's Cyber Security Breaches Survey 2024 reveals that half of UK businesses, including 74% of large businesses, experienced a cyber-attack in the past year[2], highlighting that no organisation is immune despite robust risk management. Recovery costs from cyber-attacks are surpassing cyber insurance coverage, with only 1% of claimants fully covered[3], leading to expectations that cyber premiums will exceed property premiums by 2040. Effective incident response is crucial, starting with timely detection of an attack, which can take days to months.

Key elements of a response plan include identifying critical data for prioritisation, selecting a capable crisis team, establishing a policy on ransom demands and having third-party advisors ready.

Cyber insurance can provide access to necessary support and tools like 24/7 monitoring to enhance resilience.

Post-breach investigations are essential for learning, mitigating potential risks and strengthening cybersecurity.

[2]Cyber Security Breaches Survey 2024 *GOV.uk*, 9 Apr 2024..
[3]Ruel, Clare. "Recovery Costs of Cyber-Attacks Outpacing Insurance," *Insurance Times*, Jun 2024.

> "You can do everything possible to try and prevent a cyber attack, but if you don't have an incident response plan, how will you survive contact with the enemy when it happens?
>
> — Sneha Nichols-Dawda
> Consultant, Crisis & Security Strategy
> AnotherDay, A Gallagher Company

CYBER CAPTIVES ARE GAINING TRACTION

Organisations are increasingly considering incorporating a portion of their cyber risk into a captive portfolio. This approach often involves using deductible infills and small retentions with low limits to access top-tier support services after a breach. Custom policy wordings can offer enhanced coverage, particularly important for ambiguous areas like war or state-sponsored attack exclusions.

RISK IN FOCUS: CYBER ESPIONAGE

Who is watching your C-suite and why?

Cyber attacks don't always result in immediate disruption for an organisation and an often-overlooked threat is cyberespionage, whereby a threat actor infiltrates a system to harvest information. This type of attack is about playing the long game and can bring the perpetrator far greater reward than a ransom payment.

For example, a cybersecurity breach on a firm's IT systems could lead to the theft of intellectual property. Once in the system, a threat actor could lurk undetected and feed information and data to a third party for months or even years. The biggest enemy could turn out to be a competitor successfully trading against you. Understanding the vulnerabilities and protections between critical data sources should an attacker breach the outer firewall is of vital importance, as once in, an attacker will likely have time to mine the network of data sources and identify where the most valuable assets are.

> **Natural catastrophe supply chain risks are advanced emerging risks. They are not new, but they are changing profile and that's why horizon scanning is so important. Businesses are looking beyond the 'bread and butter' captives. Captive structures are becoming increasingly sophisticated in delivering cost, control and coverage benefits to their owners.**
>
> — Julia Graham, CEO, Airmic

Part Three

Natural catastrophes and our assessment of areas of risk are impacting a growing but more concentrated global supply chain in exponential ways.

As natural catastrophes like floods, wildfires, and hurricanes become more frequent and severe, supply chains are facing increased complexity. Organisations need to assess not only the probabilities of such events but also their potential impact and disruption on their supply chains.

Contingent Business Interruption (CBI) modelling aids in understanding risk scenarios from both a perils and impact perspective. By leveraging historical data for detailed scenario analysis and horizon scanning, businesses and insurers can better manage exposure to vulnerable commodities, infrastructure, or industry sectors. It's crucial for businesses to understand supply chain risks from both direct and indirect suppliers, especially regarding shared geographies and natural catastrophe risks.

CASE STUDY

A TYPHOON IN A TRANSPORT HUB

A CBI scenario presented by the Gallagher Research Centre.

The Gallagher Research Centre (GRC) conducted a CBI scenario analysis focusing on the Pearl River Delta (PRD) in Guangdong, China, a critical global transport hub with significant natural catastrophe risk.

The scenario examined the impact of a Typhoon Storm Surge on this region, which handles approximately 44% of China's exports to Asia and 22% of exports to Europe, particularly in textiles and electronics. The PRD is vulnerable to severe typhoons, and a major storm surge could cause extensive coastal flooding, affecting industrial hubs like Macau, Sianwei, and Lulian, and damaging key transport infrastructure.

The analysis showed that such an event would not only disrupt regional business operations but also have global repercussions, halting or delaying imports and potentially causing price increases in electronics and clothing due to supply shortages.

A plausible stochastic storm track for a category 3 Typhoon was selected from the 10,000-year event set[4], with the GRC team then running a hydrodynamic simulation of the typhoon passing across the Pearl River Delta and generating a large coastal surge. The model showed the timeline of the event, from water levels rising to the storm surge moving into low-lying areas of the delta. Dense industrial hubs such as Macau, Sianwei and Lulian were shown to be at particular risk of coastal flooding, along with damage to key transport hubs around the delta (used for road, cargo shipping and air transport).

The scenario demonstrated that aside from the damage to critical infrastructure causing regional business interruption (BI), the contingent business interruption (CBI) impacts would have truly global ramifications as countries imports were halted or delayed. Similarly, such an event would be likely to lead to broader macroeconomic impacts, such as price rises in electronics and clothing, as demand outstripped the global supply.

> “The modern reality of what are well-known risks is challenging the way businesses address the impact on their profitability and security in ways unimagined even in recent history. This requires a refresh of thinking as to the effectiveness of their risk strategies and fuels the growth of alternative risk management strategies.
>
> — Mark Owen
> Managing Director — Guernsey, Artex

[4]Bloemendaal, N., Haigh, I.D., de Moel, H. et al. Generation of a global synthetic tropical cyclone hazard dataset using STORM. Sci Data 7, 40 (2020). https://doi.org/10.1038/s41597-020-0381-2 Generation of a global synthetic tropical cyclone hazard dataset using STORM | Scientific Data

Business interruption was named the second biggest global business risk after cyber risk for 2025 in the Allianz Risk Barometer, followed by natural catastrophe risk at number three[5].

> Given the increasing interconnectedness of our global supply chain, contingent business interruption is a major concern for companies. By using a scenario-focused approach covering a range of diverse sectors and risks, this research highlights the importance of companies building in resilience and more diversified supply chains. These scenarios help demonstrate some of those indirect links that companies have to potential disruption.
>
> — Dr. Iain Willis
> Research Director
> Gallagher Research Centre

The PRD scenario is not without historical precedent. The Thailand floods of 2011 led to economic losses of $30 billion USD ($15 billion insured)[6] as many were unaware of the large accumulation of car manufacturing sites and electronic hubs located in the low-lying business parks that were flooded around Bangkok. Similar CBI losses also played out with Philips Ericsson in 2000 and Tata electronics in 2024. The scenario highlights how specialised industries or sectors often locate in the same regions to take advantage of skills, knowledge transfer and scales of efficiency. However, these same locations may also represent a CBI accumulation risk without adequate risk management and diversified supply chains in place.

BUILDING RESILIENCE THROUGH THE CHAIN

Managing CBI risk in an increasingly uncertain and challenging landscape requires a detailed and robust insurance and risk management strategy.

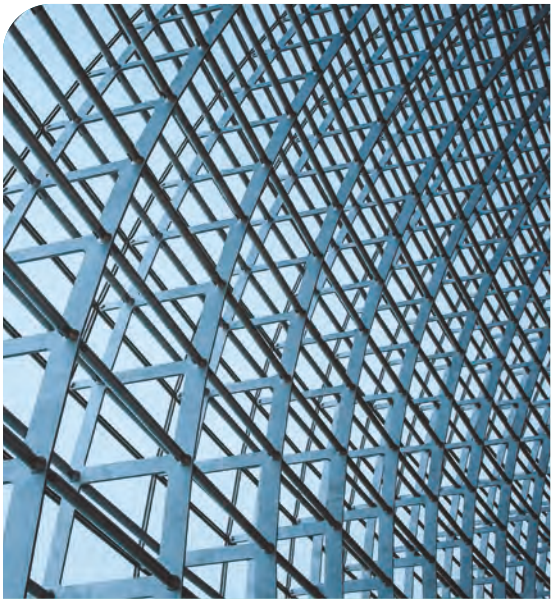
Risk mitigation

- Diversify supplier accumulations across specific territories.
- Increase stockholding capacity, ensuring readiness for potential disruption and demand fluctuations.
- Embrace nearshoring to boost agility, enabling quicker response times and improved supply chain efficiency.
- Collaborate with research specialists to explore plausible risk scenarios for your organisation.
- Partner with risk consultants to continuously evaluate exposures and underwrite CBI risks.

Risk financing considerations

- Understand the point at which your CBI insurance will respond, noting named perils, sub-limits, dependent properties, etc.
- Explore parametric insurance as a trigger-based solution to provide swift financial protection against predefined risk events.
- Consider using a captive to strategically incubate a portion of your natural catastrophe risk, allowing you to spread the long-tail risk across multiple financial years, creating capital efficiency.

[5] "Identifying the major business risks for 2025", *Allianz*, Jan 2025.
[6] Swiss Re. 2012. Natural Catastrophes and Man-Made Disasters in 2011. Sigma, No. 2.



CONCLUSION: INSURING THE FUTURE

With climate change, natural catastrophes and cybersecurity posing some of the biggest long-tail risks today, developing accurate predictions for organisational impact is vital to ensure business continuity. Organisations and insurers are increasingly partnering with third parties to develop data-led risk scenarios, which will help inform their risk management strategies.

Alternative risk transfer is now viewed as a key component of risk management and contingency planning for large corporations. Alternative risk strategies and specifically captive and cell solutions, can enable:

- Increased underwriting profitability
- Access to increased and greater diversity and use of capacity and capital
- More favourable negotiations with insurers
- The ability to build a claims history and optimise risk transfer and retention

As companies grapple with significant changes to the probability of and impact scenarios for catastrophe-based risks, harnessing the data we reference is fuelling the continual development of parametric coverages to fill the void that the conventional insurance market cannot fill.

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