



SINGAPORE ACTUARIAL CONFERENCE 2024
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Designing and Pricing Resilient General Insurance Products

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Outline

- Overview
- Climate Change
- Cybersecurity
- Takeaways

Overview

From Fire & Marine to Climate & Cyber

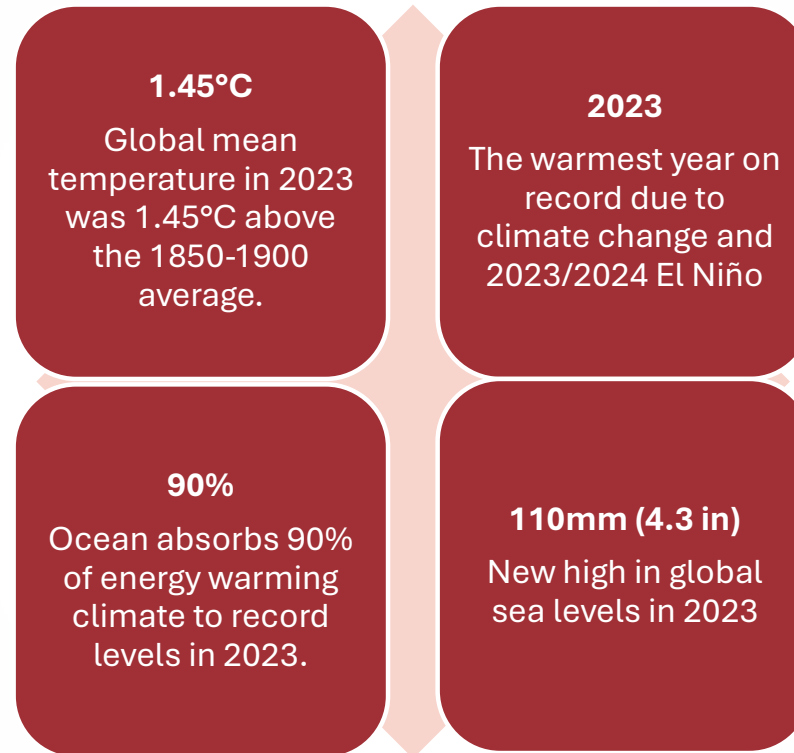
- We live in a volatile, uncertain, complex, and ambiguous (VUCA) world
- Scope of this presentation – Climate Change and Cybersecurity
- We will explore the:
 - ✓ evolving nature of these risks
 - ✓ limitations of historic data
 - ✓ role of insurance as a solution
 - ✓ importance of a multipronged approach
 - ✓ ways to design and price resilient general insurance products



Climate Change

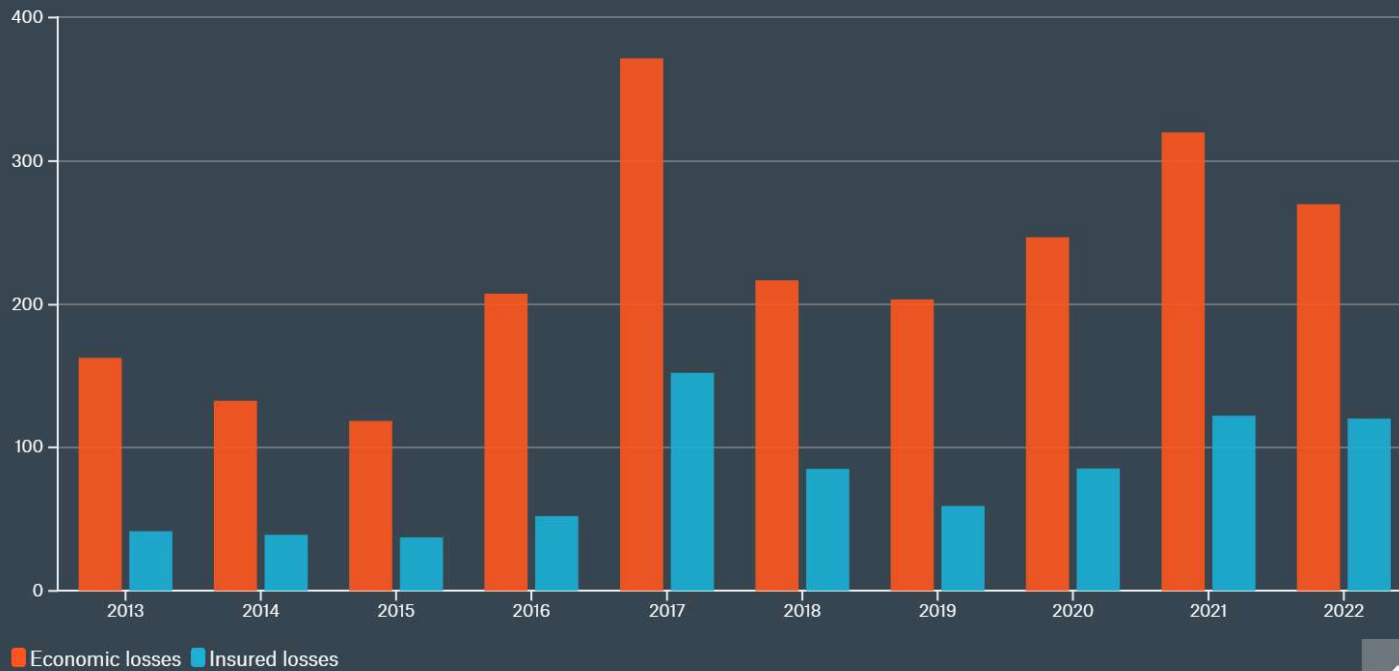
Rising Tides and Brewing Storms

- Nat Cat economic losses: USD 49 million in 1970s to USD 383 million per day today ([United Nations](#))
- Nat Cat caused USD 65 billion economic loss in Asia Pacific in 2023 ([Aon](#))
- Climate change is a major exposure to insurers domiciled in Singapore as it is a regional hub. In 2022, OIF SGD 16.5 billion vs SIF SGD 5.2 billion ([MAS](#))



Source: [World Meteorological Organization \(WMO\)](#)

Global losses from natural disasters 2013-2022
(US\$ bn, inflation-adjusted)



Source: Munich Re NatCatService



Climate Change

Limitations of historic data

- Historical data obsolete due to unprecedented climate events
- Incomplete datasets hinder accurate modelling, particularly for risks in developing markets
- Engineering technology used to build insured assets and population settlement patterns have changed in many places

Climate Change

Limitations of historic data

“Catastrophe modelling is not an exact science and requires actuaries to use best judgment when preparing data for modelling, undertaking analysis using models and interpreting model outputs”

- [*General Insurance Practice Committee \(GIPC\), The Institute of Actuaries of Australia*](#)

“Whether it’s the Turkey quake . . . or the floods in Germany or the hailstorms in Italy, models were off by factors [of] 10 or 20 per cent”

- [*Gianfranco Lot, CUO for P&C Reinsurance, Swiss Re*](#)

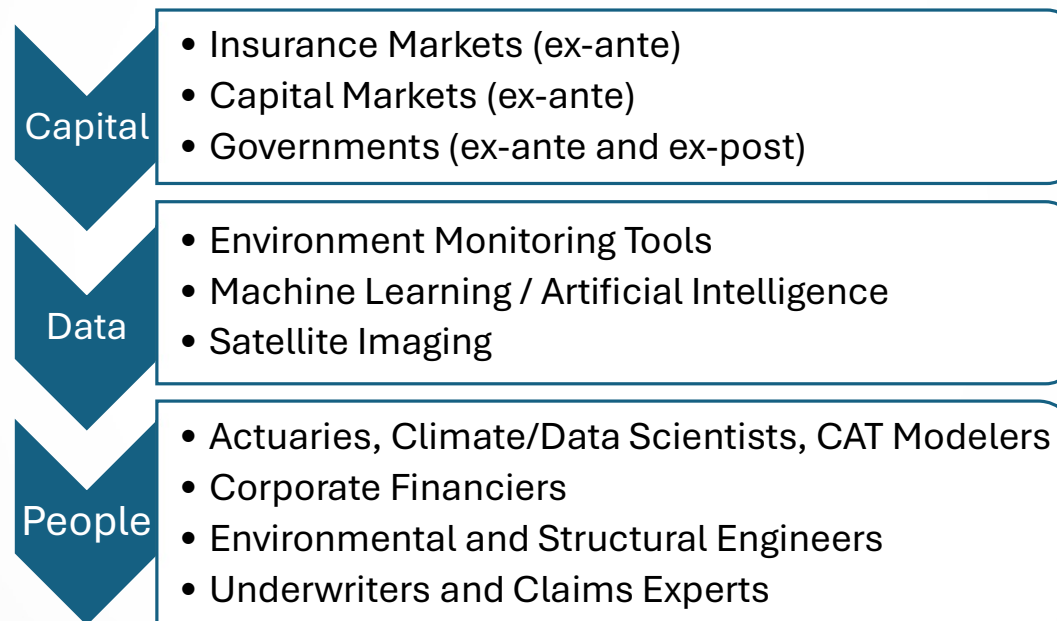
Climate Change

Role of insurance as a solution

- Nat Cat is a suitable peril to be insured because of its relatively low frequency and high severity loss pattern
- Drawbacks of insurance include limited capacity and complex policy conditions (e.g., hours clause, causation)
- Insurance Linked Securities such as CAT bonds and parametric solutions address drawbacks

Climate Change

A multipronged approach



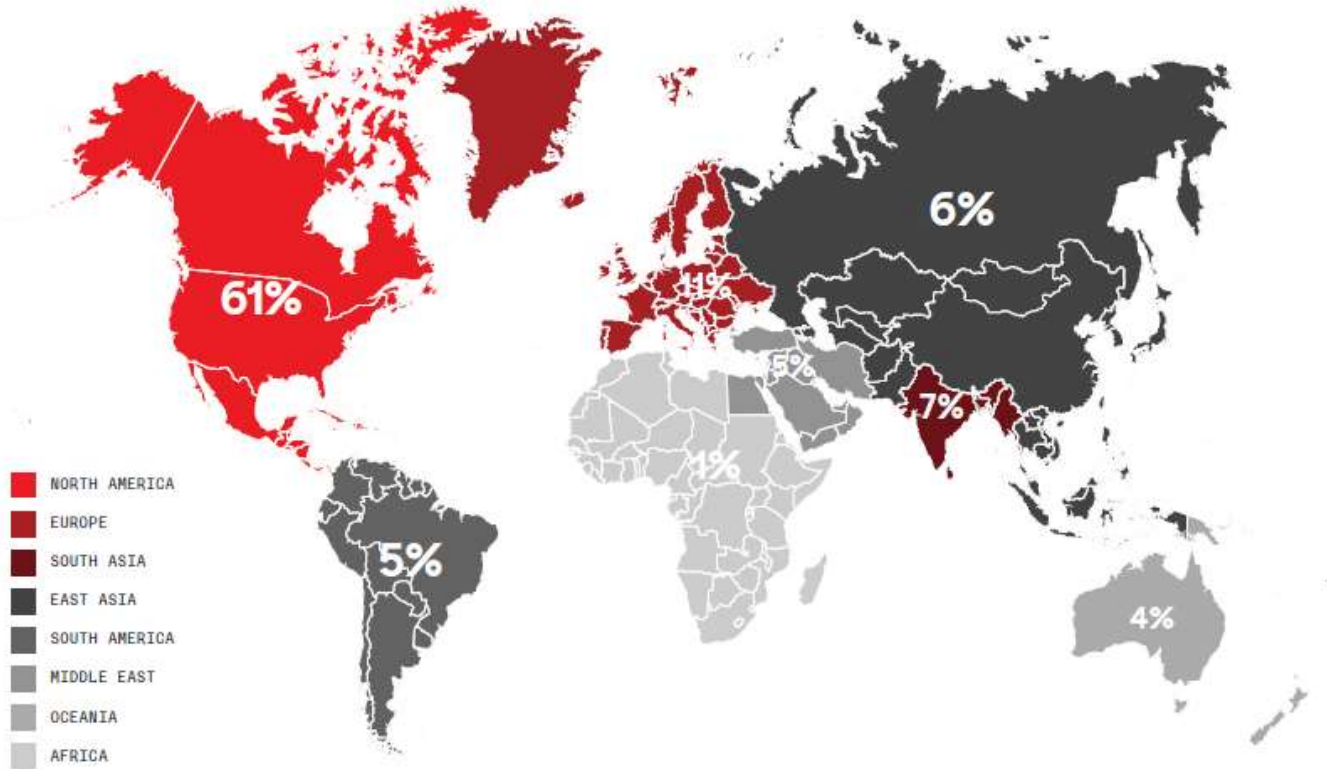


Cybersecurity

Black Hats Against the World

- Global cybercrime to cost USD 10.5 trillion annually by 2025 ([Cybersecurity Ventures](#))
- 3 trends driving cyberattacks ([World Economic Forum](#)):
 - a) The power of AI (e.g., using ChatGPT to write code and voice simulation software to impersonate)
 - b) Mobile devices expose personal and corporate data
 - c) Cybersecurity skills shortage

Interactive Intrusions by Region



Interactive Intrusions by Industry



Source:
CrowdStrike 2024
Global Threat
Report

Cybersecurity

Limitations of historic data

- 30% YoY increase in cyber attacks in Q2 2024; highest average of 1,636 attacks per week in 2 years ([Check Point Research](#))
- Scams increased by 50% from 2022 to 2023 - 5,938 phishing scams at loss of SGD 14.2 million; 1,899 malware-enabled scams at loss of SGD 34.1 million ([Singapore Police Force](#))
- “Reflecting ‘history to predict the future’ won’t cut it when it comes to ... cyber or AI-related claims” ([Greg Case, Aon CEO](#))

Potential losses from an industry-wide cyber event from different cyber model vendors in USD billions

Return period	CyberCube	Guidewire-Cyence	Moody's RMS
Global			
1-in-50 years	24	10	6
1-in-200 years	33	26	16
U.S.			
1-in-50 years	17	7	4
1-in-200 years	23	18	10

Source:
Guy
Carpenter

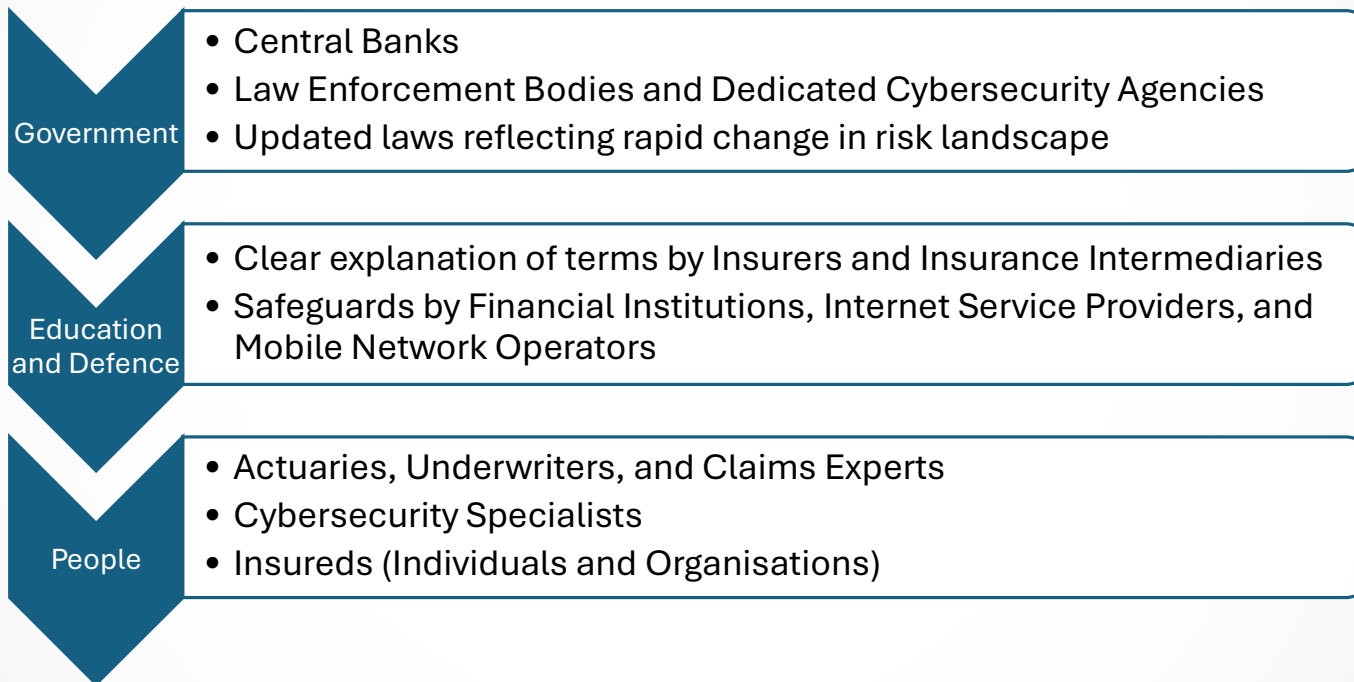
Cybersecurity

Role of insurance as a solution

- Covers business interruption (BI) loss from network failure due to errors or malware attacks, phishing, data and crisis recovery expenses, liability, blackmail or ransom etc.
- Claims range from unauthorised access through hacking, BI loss resulting from denial-of-service attack causing prolonged and widespread outage, to ransomware attack and contingent liability of supply chain partners.
- Challenges and limitations: moral hazard and lack of security awareness of insured, policy exclusions (e.g., unauthorised transactions, confidence scams), conditions (affirmative or silent cover), limits, and deductibles.

Cybersecurity

A multipronged approach





Takeaways

A Brave New World – Utopia or Dystopia

- Pricing and designing resilient GI products go together
- Past data for climate change and cyber risks is of limited use, updated and real-time data help to increase pricing accuracy
- Cyber risks' accumulation complex and not limited by geography, unlike Nat Cat
- Models are not good at quantifying extreme outlier risks, qualitative analysis and alternative data points are needed to complement model outputs

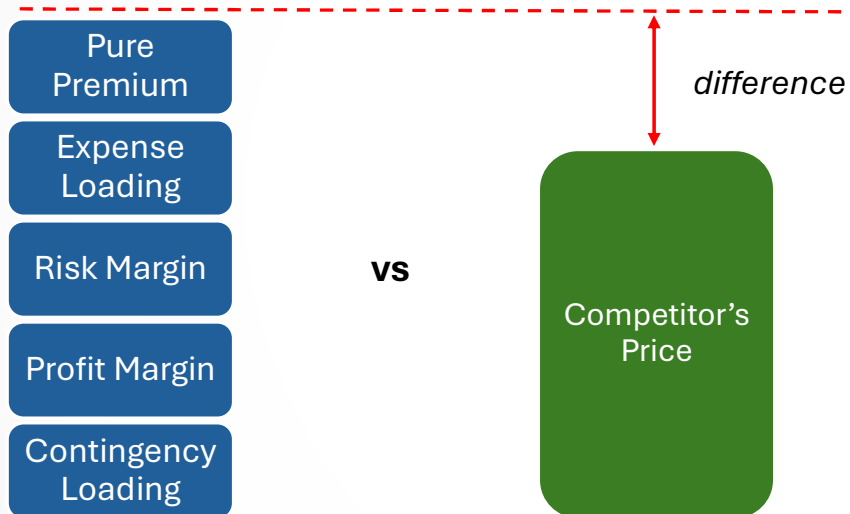
Takeaways

A Brave New World – Utopia or Dystopia

- Thoughtful and timely design of policy wordings addressing evolving risk landscape and coverage limitations is important
- Insurance is not the silver bullet; a multipronged approach is needed (slides 12 and 19)
- Take an Enterprise Risk Management (ERM) approach in managing insureds' risks
- Be a risk partner, not a risk carrier
- Be a market maker, not a price taker

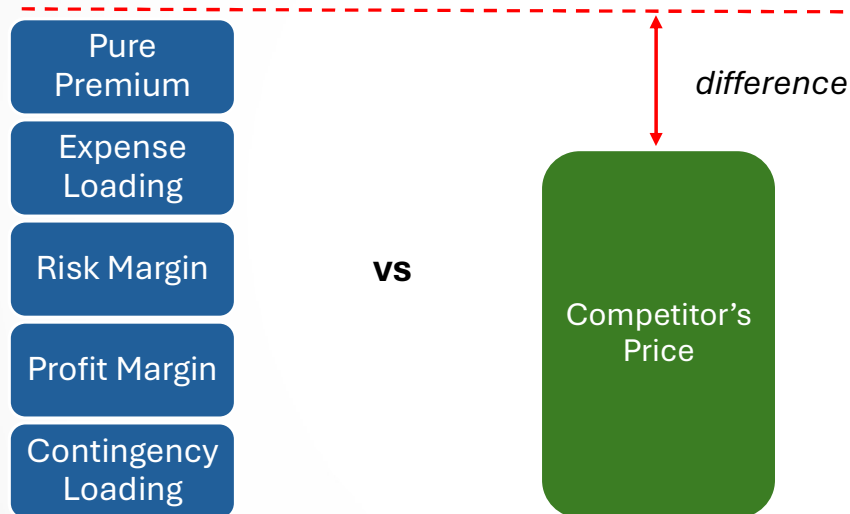
Takeaways

A Brave New World – Utopia or Dystopia



Takeaways

A Brave New World – Utopia or Dystopia



What Would You Do?

- 1) Walk away
- 2) Stick to your guns and compete on value
- 3) Match the price and race to the bottom
- 4) Drop your pants and lose your shirt

Takeaways

A Brave New World – Utopia or Dystopia

“Only when the tide goes out do you discover who’s been swimming naked”

- Warren Buffett, Chairman and CEO Berkshire Hathaway