Friday, March 17th

Presenter Slides

Kathleen Schaefer, UC Davis

Jackie Higgins, Swiss Re Management (US) Corporation

What do the Silicon Valley Bank and the Pajaro levee collapse have in common?

They are both non-ergodic.

What is ergodicity?

Ergodicity is the "Law of Large Numbers on Steroids".

One die thrown 100 times

=

100 dice thrown 1 time

What is insurance?

Insurance is the business of selling the "Law of large numbers as a service."

Insurance is the business of transforming non-ergodic events and condtions into ergodic events.

NFIP
Assumes individuals are ergodic and spreads risk in space.

Space →

Climate Insurance
Creates a community that layers the risk and spreads the risk across time.

Time →

Parametric Flood & Extreme Heat Insurance Solutions

March 2023

Parametric insurance is an innovative risk transfer tool for the public sector

Parametric insurance relies on the measurement of a natural phenomenon or index, such as:

Earthquake magnitude/intensity

River flooding

Excess/lack of rainfall

Heat/cold waves

Payout of pre-defined amount is made when contractually agreed threshold of parameter/index is exceeded (e.g., intensity of earthquake or amount of rainfall).

Fast payout (2-6 weeks)

Otherwise **uninsurable** risks can be insured (e.g., emergency costs, loss of revenues)

No loss **assessment** required

Flexibility in the use of funds

Transparency to both insurer and insured
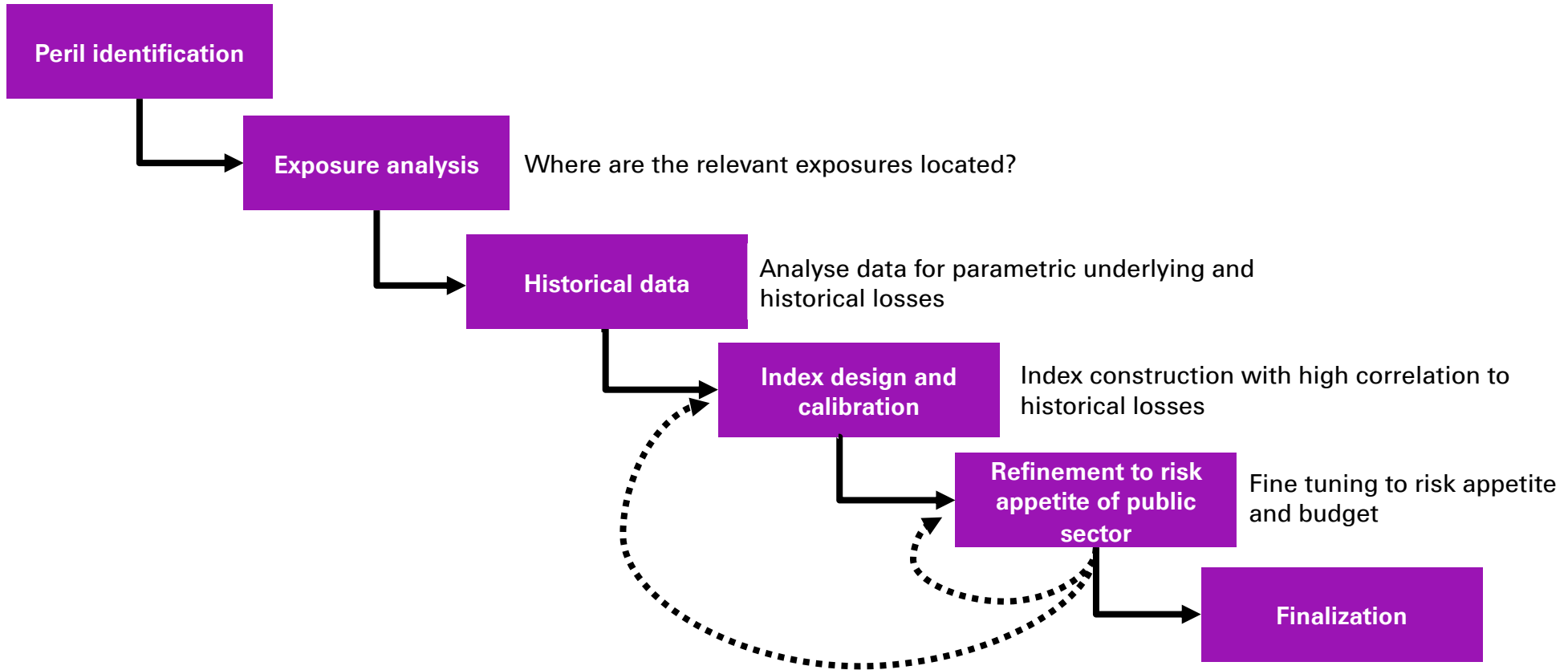
Avoids **adverse risk** selection

Challenges to be addressed
- **Basis risk** (insurance payout may deviate from actual loss)
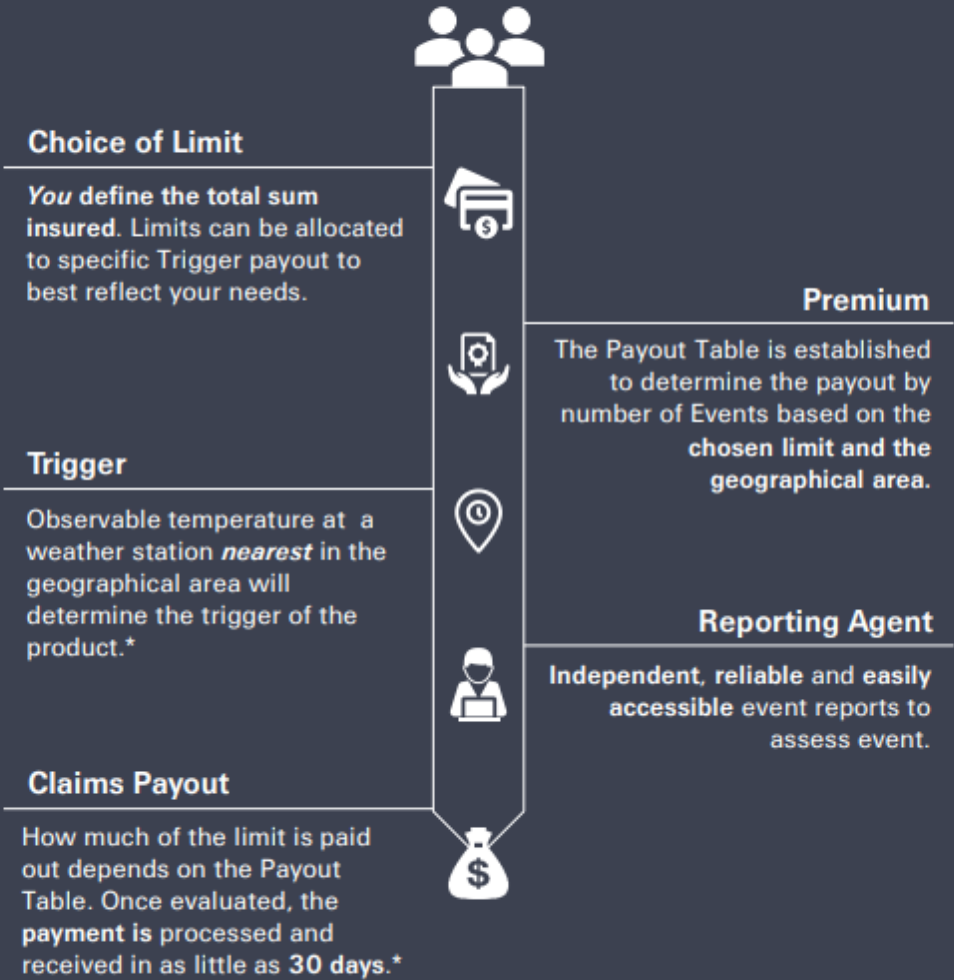- Need of objective and accurately measured **data**, required both to price and observe the index

Swiss Re

Time-to-implementation: Parametric solution development
Regular feedback loops between Swiss Re and public sector

Peril identification

Exposure analysis   Where are the relevant exposures located?

Historical data   Analyse data for parametric underlying and historical losses

Index design and calibration   Index construction with high correlation to historical losses

Refinement to risk appetite of public sector   Fine tuning to risk appetite and budget

Finalization

Extreme Weather
An innovative solution fully tailored to your needs

Choice of Limit

You define the total sum insured. Limits can be allocated to specific Trigger payout to best reflect your needs.

Trigger

Observable temperature at a weather station *nearest* in the geographical area will determine the trigger of the product.*

Claims Payout

How much of the limit is paid out depends on the Payout Table. Once evaluated, the **payment is** processed and received in as little as **30 days**.*

Premium

The Payout Table is established to determine the payout by number of Events based on the chosen limit and the geographical area.

Reporting Agent

Independent, **reliable** and **easily accessible** event reports to assess event.

Swiss Re

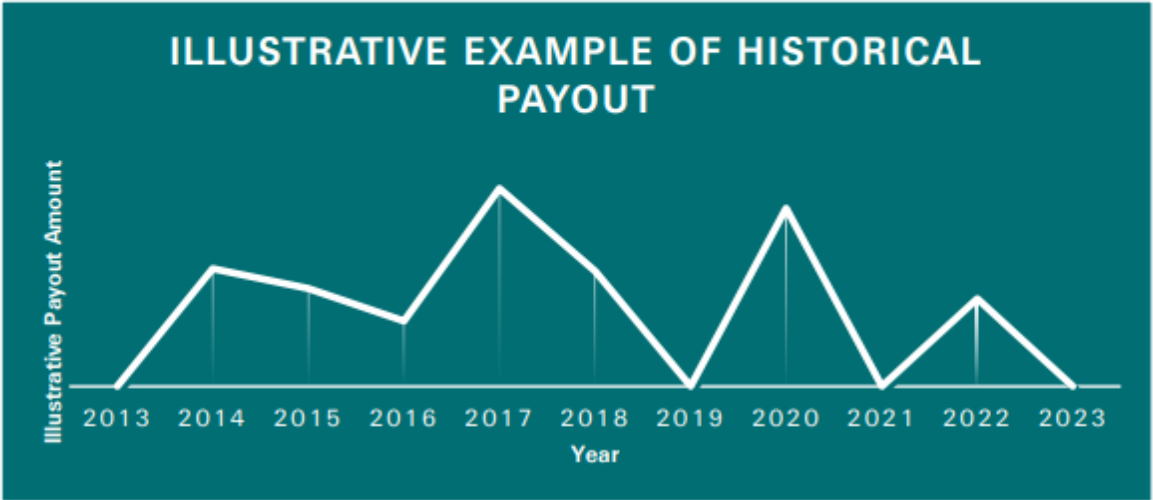*A proof of loss within 12 months is required.

Parametric offers flexibility and transparency to additional funding on extreme heat days

You drive the design of the product by selecting the limits of your interest while Swiss Re use station data to develop a historical temperature profile for the location(s) of interest

Together, we structure a solution that correlates to the indication of extreme heat events. On the right, the illustrative payout links to insured limit.

Illustrative structure :
Location: Downtown LA
Index: Maximum Temperature
Data Provider: Speedwell
Insured Limit: USD 5M

Illustrative Payout Index	Illustrative Payout Amount
98	25%
99	30%
100	40%
101	50%
102	60%
103	70%
104	80%
105+	100%

ILLUSTRATIVE EXAMPLE OF HISTORICAL PAYOUT

Illustrative Payout Amount

2013 2014 2015 2016 2017 2018 2019 2020 2021 2022 2023

Year

FLOOD
The right solution for your flood protection needs

Choice of Limit

***You* define the sum insured.** Limits are allocated to specific Trigger locations (e.g., lat longs) to best reflect the Insured's exposure.

Trigger

Post-event, we receive a flood footprint from ICEYE, which is used to determine whether a location is flooded with >10cm water at each Trigger Location of your choice.

Loss Confirmation

Insured confirms to us that their loss from the event met or exceeded the payout received.

Premium

The Payout Table is established to determine the payout by number of flooded Trigger Locations.

Claims Payout

We pay the Insured according to the ICEYE flood maps. Once evaluated, the **payment** is processed and received in as little as **30 days**.*
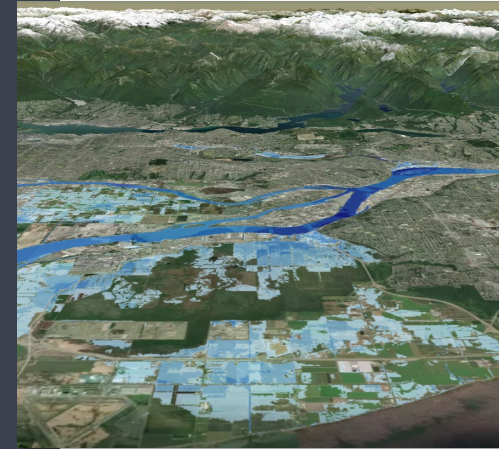
British Columbia Floods, November 2021
Source: ICEYE, CatNet
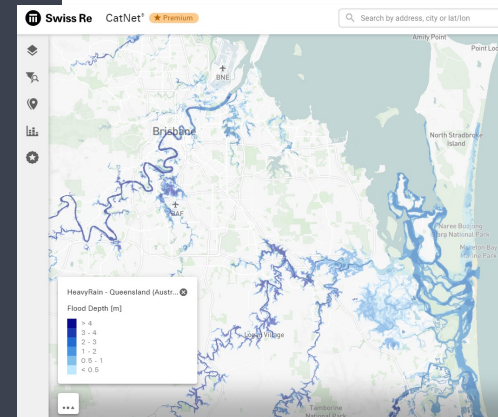
Queensland, Australia Floods, February, 2022
Source: ICEYE, CatNet

✓ **Uses Independent Data Provider:** Flood maps from extreme precipitation, storm surge, and all other flooding events provided by ICEYE.

✓ **Offers Quick pay out:** Pay out in as little as 30 days after notification of eligible event.

✓ **Coverage in Insurance Form:** Insured has 12 months post event to determine full extent of financial loss and sign letter attesting to actual financial loss.

✓ **Offers Flexible Coverage:** Payments can be used for immediate emergency needs, business expenses not covered elsewhere, increased supply cost, increased labor cost, delay cost, building damage, etc.

✓ **Addresses impact at a granular level:** The structure reflects the impact of and damage caused by flooding (resolution up to 1m x 1m) at each insured location.

✓ **No Deductible**

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*For insurance transactions, a proof of loss within 12 months is required.

NYC Flood parametric – ICEYE

Summary

- On February 1, 2023, The Center for New York City Neighborhoods (CNYCN) pilots a community based parametric insurance program to protect Low to Moderate Income (LMI) communities against flood risk.

- Initiative was led by Guy Carpenter and Swiss Re Public Sector Solutions

- Coverage provided by Swiss Re Corporate Solutions Global Markets as a derivative to address proof-of-loss requirements for the counterparty

Product

- New technology from ICEYE allows rapid settlement using **high-resolution imagery** of what is happening on the ground

- Following a flood, ICEYE produces a **flood footprint** that classifies an area as flooded or not

- Swiss Re's parametric flood product pays CNYCN when a triggering event occurs.

Outcome

- CNYCN issues grants to LMI residents affected by floods, regardless of the parametric payout.

- Parametric payouts are used by CNYCN to recapitalize their funds following the issuance of grants

- The pilot program is funded by the National Science Foundation and advised by the NYC Mayors office, who aspires to expand the coverage area in the future.

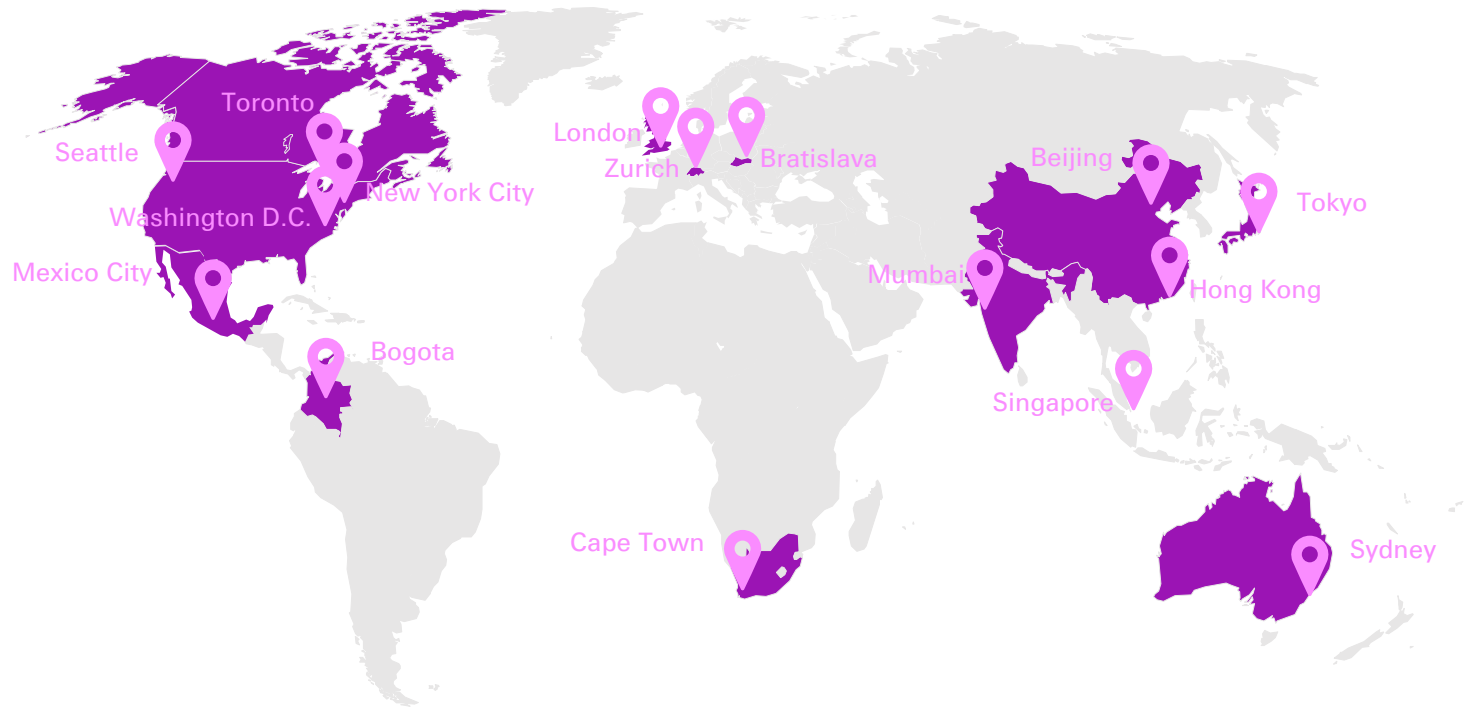# Meet Swiss Re's Public Sector Solutions Team

+1000 bound transactions since 2011 demonstrate the need for the covers we offer

With **our global footprint** we provide tailored support for the **specific needs** of our public sector clients

Always at the forefront, we are **a pioneer in emerging and industrialized markets**

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New York City
Mexico City
Bogota
London
Zurich
Bratislava
Beijing
Tokyo
Mumbai
Hong Kong
Singapore
Cape Town
Sydney

"1ˢᵗ team in the reinsurance industry to be **fully dedicated to the public sector.**"

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Public Sector Solutions builds on its risk partnerships to create a sustainable response to the global agenda of governments across the world.

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By combining insurance and tech applications we provide public sector clients with a digital disaster risk management opportunity.

Public Sector Solutions offers a suite of risk transfer solutions combining parametric and indemnity-based insurance products to smoothly transfer risks to the (re)insurance industry.

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Thank you!

Contact us

Jackie Higgins
Head Public Sector Solutions NA
Jacqueline_Higgins@swissre.com
+1 202 220 6319

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