PARAMETRIC SOLUTIONS IN INSURANCE

NATIONAL ASSOCIATION OF INSURANCE COMMISSIONERS
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Parametric Risk Transfer

Why Are Parametric Solutions?

Parametric solutions pay a pre-established amount based on the occurrence of a **physical event with certain characteristics**

Is Parametric Right for the Client?

Parametric structures can complement traditional indemnity program

When evaluating the benefits of parametric insurance, the positive traits need to be assessed against the cost of negative **basis risk**

Why Parametric? Why now?

**Strategic** – Can provide access to alternative sources of capacity, at a price comparable to traditional indemnity

**Versatile** – Recoveries can be applied to various economic losses; can be used to target problematic accumulations and coverages

**Customizable** – Offers a range of coverage triggers that adhere to budgetary constraints

**Fast** – Payments within weeks, not months or years; can provide cash flow in the aftermath of the event

**Transparent** – Coverage is clear and understood by buyer and seller; not subject to exposure related inflation

**Broad Application** – Available to reinsurers, corporations and public entities globally

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Examples

Using SEISMOMETERS at particular locations: If the magnitude value exceeds X at location Y, then the insured receives a payment of $1m.

Using PLUVIOMETERS at particular locations: If rainfall exceeds X at location Y, then the insured receives a payment of $1m.

Using SATELLITE SYSTEMS: If the area burnt in the wildfire exceeds X acres, then the insured receives a payment of $1m.

Using ANEMOMETERS at particular locations: If the wind speed exceeds X at location Y, then the insured receives a payment of $1m.

Using RULERS at particular locations: If the hail size exceeds X inches at location Y, then the insured receives a payment of $1m.
Traditional Indemnity

A hazardous event happens

The event may cause damages and economic losses to the insured asset

A surveyor or claims specialist assesses actual damages

Actual damages may be included (or excluded) in the indemnity clauses; claims may be disputed

Monetary recovery is provided

Months to Years

The underwriting/due diligence/product design phase is not depicted in the graphics above
Parametric solutions may have BASIS RISK (difference between the actual parametric payout and the expected payout based on the losses incurred).

It can be addressed:

- **Upfront**, during the due diligence, underwriting and product design process.
- **Post payment loss adjustment**, implementing provisions requiring any payments exceeding actual loss to be returned to the insurer.

Parametric Solution

A hazardous event happens  | Monetary recovery is provided

Earthquake  | Recovery

Days to Weeks

The underwriting/due diligence/product design phase is not depicted in the graphics above.
# Traditional Indemnity & Parametric Solution

The underwriting/due diligence/product design and/or the claims adjustment process ensures recoveries approximate experienced losses.

<table>
<thead>
<tr>
<th>Speed</th>
<th>Transparency</th>
<th>Versatility</th>
<th>Customization</th>
<th>Precision</th>
<th>Basis Risk</th>
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### Traditional Indemnity

- Payments are fast as there is no up-front claims adjusting process.

### Parametric Solution

- Payments are pre-tabulated in the contract and triggering parameters are reported publicly.
- Flexibility to use proceeds as needed with limited exclusions and specifications.
- Cover can be designed to guarantee certain levels of payment for desired scenarios.
Example of a Cat-in-a-Grid Earthquake Parametric Cover for Colombia

The map divides the region in cubes and assign to them a magnitude threshold value.

If an event happens in the cube and its magnitude attains or exceeds the magnitude threshold, then a pre-agreed payout is triggered.

Near Bogotá, the minimum magnitude required to produce a payout for this trigger is M5.7.
Example of a **Cat-in-a-Grid** Tropical Cyclone Parametric Cover for Puerto Rico

In September 2017 Hurricane Maria made landfall in Puerto Rico as a Category 4 hurricane. Track data, obtained in real-time from NOAA, is used to calculate an index that dictates payments of the policy.

Source: [https://www.ospo.noaa.gov/Organization/History/imagery/Maria/](https://www.ospo.noaa.gov/Organization/History/imagery/Maria/)

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Example of a Wildfire Parametric Solution for Colombia

Wildfire data obtained in near real-time by NASA FIRMS (Fire Information for Resources Management System) is used to establish trigger conditions.

NASA FIRMS detections show daily fire activity in Colombia between the end of 2021 and early 2022, one of the highest wildfire season up to date.
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State Insurance Regulation and Parametric Insurance

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Topics

• What is Insurance?

• Related Key Legal Issues
What is Insurance?

- **Context matters** – different standards apply under state insurance laws, US commodities laws and US federal tax laws
- The rules under US insurance laws vary by state
  - any agreement or other transaction whereby one party, the "insurer," is obligated to confer benefit of pecuniary value upon another party, the "insured" or "beneficiary," dependent upon the happening of a fortuitous event in which the insured or beneficiary has, or is expected to have at the time of such happening, a material interest which will be adversely affected by the happening of such event.
  
  N.Y. Ins. Law § 1101(a)(1).

  - a contract whereby one undertakes to indemnify another against loss, damage, or liability arising from a contingent or unknown event.
  

  - [w]hether or not a contract is one of insurance depends on its purpose, effect, contents and import, and is not determined merely by the terminology used.
  
What is Insurance?

• **Key Elements of Insurance**
  - Assumption of Risk
  - Fortuitous Event
  - Insurable Interest
  - Indemnity for Loss
  - Risk Spreading

• Indemnity for loss by reason of the original insurance contract is an “essential element” of reinsurance risk transfer rules – *SSAP 62R*

• **Key Implications of Being Insurance**
  - Subject to applicable state insurance laws and oversight by state insurance regulators
  - *May* qualify for “insurance safe harbor” under CFTC and SEC rules governing swap transactions
  - *May* qualify as “insurance” under US federal tax law
Related Key Legal Issues

• Analyze applicable legal requirements
  • Must consider state insurance laws, rules governing swaps and applicable tax law
  • An evolving area of state insurance law

• Conduct due diligence to address basis risk
  • Both the insurer and insured (or their representative)

• Use the language of insurance – *form matters*
  • Contract language should reflect that the “principal object and purpose” of the transaction is indemnity

• “True Up” provisions
  • Require the insured to submit proof of loss within a specified period of time
  • Insured must return any claims payments in excess of actual losses incurred