

Parametric Solutions

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The impact of volcanic activity on commercial and civil society

- As is widely known volcanic eruptions can have massive and existential impact on assets and communities with a local and wide area caused by:
 - gas
 - ash
 - lava/pyroclastic flow
 - lahar (mudflow)

Resulting in:

- death
- physical damage to property/other assets and infrastructure
- displacement and civil unrest
- environment/crops/livestock
- etc
- Traditional physical damage and business interruption policies do not cover non damage business interruption

Non Damage Business Interruption

- Black swan events such as volcanic eruptions, but also other natural catastrophes (e.g. earthquake/hurricane) and man-made catastrophes such as terrorism, may cause no direct damage to insured physical assets, but nonetheless can have severe financial consequences
- Such non-physical damage impacts can include:
 - flight cancellations and delays/airport closures
 - impeded ground logistics/wide-area disruption
 - increased costs of operation
 - long-term loss of trade and attraction of a destination
 - failure of broader financial obligations (debt repayment etc)
- With few, if any, conventional insurance products available

Challenges to traditional business interruption coverage

Coverage

- Business interruption is only covered if it results from damage to owned assets
- Difficulty in covering fines and penalties
- Coverage often subject to exclusion, deductibles and waiting periods
- Significant underwriting information requirement

Claims

- Business interruption claims are complex to adjust
- There is a lack of certainty of outcome of a claim
- The loss adjustment process can be lengthy resulting in delays to claims payments
- Local infrastructure required for loss adjustment

Parametric solutions

Characteristics

- Can provide a mechanism for transferring the financial impact of natural and man-made black swan events commerce or even at country level
- Damage to property is not required to trigger the solution
- Respond to movements in an index (usually weather) or the occurrence of a pre-agreed event such as an earthquake, windstorm, terrorism or volcanic eruption
- Claims are triggered if:
 - the actual measurement of the index during the contract period moves above (or below) an agreed index point, or
 - the physical characteristics of the event meet pre-agreed criteria (e.g. intensity and location)
- The claim amount is usually calculated according to a pre-agreed scale of payment, but can be on an indemnity basis
- Claims are paid quickly after the occurrence of the policy trigger
- There is no restriction on the use of claims payments

Parametric solutions

Parametric risk transfer requires a number of critical components:

- A clear, robust definition of the policy trigger
- An independent, recognised and trusted source of the measurement of the policy trigger
- An agreed basis of settlement should the trigger event occur

Policy triggers	Measurement of policy trigger	Basis of settlement
<ul style="list-style-type: none">▪ Natural catastrophes such as earthquake, windstorm or volcanic eruptions▪ Adverse weather such as snow, freeze or drought▪ Man-made perils such as terrorism▪ Life perils such as pandemic or increased mortality	<ul style="list-style-type: none">▪ Intensity and location of a windstorm (e.g. as measured by the NHC)▪ The annual rainfall at an agreed location as measured by a WMO Met Office▪ Confirmation of the outbreak of a covered disease by the WHO▪ The imposition of travel restrictions by the CAA or a specified government.	<ul style="list-style-type: none">▪ A fixed payment should the trigger event occur▪ An agreed scale of payment according to the severity of the trigger event▪ An agreed scale of payment based upon the impact of the event on a secondary index such as passenger numbers or flight cancellations▪ A traditional business interruption calculation

Developing parametric solutions for volcanic eruption risk

Next steps - airline example

- Determine robust sources of volcanic to underpin a parametric policy
 - ash data – a particular challenge
- Agree how the policy will be triggered:
 - concentration of ash
 - position of the of the ash cloud
 - CAA decision to restrict commercial jet travel
- Appoint independent arbiter of the occurrence of the policy trigger
- Align financial impact with external index
- Determine claim calculation mechanism methodology to determine the financial impact *e.g.*:
 - number of days that ash cloud remains in specified zone
 - number of cancelled flights
 - days that airspace is closed
 - lost passenger numbers

Willis Towers Watson credentials

Willis Towers Watson is a leading broker of parametric solutions with a dedicated unit of alternative risk transfer experts located globally across our network.

Through our Alternative Risk Transfer Solutions Group and Willis Towers Watson Securities (Europe) Limited, we have experience and expertise in structuring, executing and syndicating parametric solutions for both corporate and insurance company buyers.

We are FCA regulated to execute transactions with both insurance and capital market counterparties so can build significant capacity at competitive prices.

We have executed transaction in Europe, North America, Latin America, Africa and Asia Pacific regions.

We have developed solutions for clients in many industry sectors including Agriculture, Aviation, Construction, Energy, Leisure & Hospitality, Logistics, Mining and Retail.

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Julian currently serves as a senior member of the Willis Towers Watson Risk & Analytics / Parametric Solutions team and is responsible for the Willis Global Agricultural Practice Group and co-heads the London weather team. He joined Willis in September 2010 after a career in risk management consulting and alternative risk structuring. He is an Approved Person of Willis Towers Watson Securities (Europe) Limited.

Education and Credentials

- University of Oxford (Trinity College) – B.A. (Hons) and M.A. in Natural Sciences
- University of London (Wye College) – M.Sc. in Agricultural Economics

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Claire Wilkinson

Managing Director, Alternative Risk Transfer Solutions



Claire is a Managing Director in the Alternative Risk Transfer Solutions practice, and co-head of the Willis Towers Watson Global Weather Practice. Based in London, she is responsible for the origination, structuring and execution of parametric solutions for companies across all industry sectors on a worldwide basis. She is also responsible for developing alternative risk financing solutions to address complex risks.

Education and Credentials

- BSc (Hons) degree in Mathematics and Statistics
- Post Graduate Certificate in Education
- Associate, Chartered Insurance Institute (ACII)
- Associate, Risk Management (ARM)
- FCA approved person for securities and financial derivatives
- Vice President of the Weather Risk Management Association

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Matthew James

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Matthew is a Consultant in the Alternative Risk Transfer Solutions practice. He joined Willis Towers Watson on the Graduate Programme in 2011. His focus is on developing and transacting parametric placements, often in agriculture and 'weather' more broadly.

Matthew works across insurance, reinsurance and derivative placements helping clients across multiple industries manage their exposure to the weather. His advisory and broking activities extend to work with captives, and on complex multi-line, multi year arrangements.

Education and Credentials

- Durham University, Politics
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