

# Uncertain waters: can parametric insurance help bridge NatCat protection gaps?<sup>1</sup>

## Executive summary

**Economic losses from natural catastrophes (NatCat) are increasing, with a significant portion remaining uninsured.** NatCat protection gaps, often defined as the difference between insured and total economic losses from natural disasters, can be substantial. A widening protection gap may increase strain on governments, threaten financial stability and have a significant impact on households and businesses. Addressing these gaps requires coordinated efforts from governments, international organisations, the insurance industry, insurance supervisors and consumers.

**The International Association of Insurance Supervisors (IAIS) has issued a call to action for supervisors to address NatCat protection gaps.** It outlines a series of actions whereby insurance supervisors could help improve the affordability, availability and uptake of catastrophe insurance. Key actions include creating a supportive regulatory environment that enables offering innovative products such as parametric insurance.

**Parametric insurance offers a promising solution to reduce NatCat protection gaps.** It provides rapid payouts triggered by predefined, measurable parameters, offering alternative or supplementary coverage to traditional indemnity insurance, including for losses that are often excluded by the latter. Despite its potential, the adoption of parametric insurance remains limited due to challenges such as basis risk, product complexity and regulatory barriers.

**This paper analyses the key design elements of parametric insurance products and provides insights to supervisors in jurisdictions where it can be an effective risk management tool.** It synthesises insights from responses from 12 insurance supervisory authorities and seven market participants to a survey focused on the design of non-agricultural NatCat parametric insurance for households and small and medium-sized enterprises (SMEs), as these events directly impact them and often cause severe financial harm. Rapid recovery is crucial for economic and societal resilience, particularly in emerging market and developing economies (EMDEs) where SMEs drive economic activity and employment.

**Survey responses indicate that regulatory requirements for parametric insurance products vary widely.** Some jurisdictions have specific laws, while others use broader insurance regulations or pilot projects to govern these products.

**On the topic of index selection, respondents highlighted the importance of using indices that are objective, reliable and closely correlated with potential losses.** Authorities in some jurisdictions have established clear guidelines and requirements for index selection, while others allow more flexibility. Industry participants emphasised the need for high-quality data and transparency in index selection, using diverse sources such as government agencies and third-party data providers.

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**When it comes to triggers, the determination of payout triggers involves various approaches, including direct triggers, intensity-at-location triggers and multiple triggers.** Ensuring that triggers are closely aligned with actual losses is crucial to minimise basis risk. Authorities have implemented measures such as educational workshops and transparency requirements to enhance the understanding and acceptance of triggers.

**Payout structures in parametric insurance can include fixed, proportional and incremental payouts.** Industry participants use strategies like leveraging sensor data and streamlined claims processes to ensure timely and fair payouts. Regulatory measures to promote transparency and fairness in payout structures include clear criteria for payout eligibility and general transparency principles.

**Despite advancements, challenges remain in integrating indices and triggers into parametric insurance products.** Issues such as client acceptance, data quality and the high cost of data collection and risk modelling were identified by industry participants. Authorities emphasised the need for better data availability, enhanced modelling techniques, and stakeholder collaboration to address these challenges and improve the effectiveness of parametric insurance.

**Survey respondents provided several key recommendations to address the challenges associated with the adoption and effectiveness of parametric insurance products.** These recommendations focus on improving data quality and availability, enhancing analytical and modelling capabilities, increasing education and awareness among potential users, and fostering regulatory clarity and support.

**To improve data quality and availability, respondents emphasised the need for high-quality, granular data sourced from reliable providers such as satellite imagery, sensors and meteorological stations.** Authorities are encouraged to establish clear guidelines for index selection and ensure transparency and reliability through data source verification and compliance checks.

**Enhancing analytical and modelling capabilities involves leveraging advanced tools like artificial intelligence and machine learning for risk modelling and backtesting.** Respondents also highlighted the importance of refining trigger mechanisms to ensure they closely align with actual losses, thereby minimising basis risk. Collaboration with other agencies and stakeholders is crucial for developing standardised transparency requirements and joint risk and exposure studies.

**Increasing education and awareness among potential users is essential for promoting the adoption of parametric insurance.** Respondents recommended conducting educational workshops, improving consumer financial literacy, and providing clear policy documentation to help users understand the benefits and limitations of parametric insurance products.

**Regulatory clarity and support are key for the successful implementation of parametric insurance.** Authorities are encouraged to establish clear regulations for indices, triggers and payout structures, and provide an enabling supervisory framework that sets out clear expectations and guidance. Engaging in stakeholder consultations and enhancing cooperation among insurers, authorities and data providers will help build trust and ensure the reliability of parametric insurance products.