TATA CONSULTANCY SERVICES

Building on belief

Reinventing the parametric insurance paradigm

Abstract

A new wave of parametric insurance products is sweeping the insurance industry. It is becoming the zeitgeist of the present and future of insurance. However, parametric insurance is not a new concept, and has been around for over 25 years offering risk cover predominately for natural catastrophe-related losses. It is now seeing newfound traction across different risk types that were hitherto underinsured or considered uninsurable. Given that dynamic changes are making risk unpredictable, difficult to model, and assess, in turn creating gaps in coverage, parametric insurance has emerged as an effective vehicle to bring in certainty and mitigate the protection gap. New technologies are a primary catalyst for the reinvention of parametric insurance. This white paper details the structure of traditional parametric products and how they are evolving, the technologies that are driving the change, and the future outlook.

Parametric insurance, as we know it

Traditional insurance products compensate for an actual loss, following damage to assets, and are often limited in the protection they offer and the way they settle claims. Parametric insurance products can help fill these gaps. The structure of a parametric cover comprises a pre-defined event that serves as a trigger, an index related to the event, the amount to be paid, and the payout mechanism. In contrast with traditional insurance, parametric policies make a near-automatic payment of a preset amount when a predefined parameter or index of a pre-agreed risk event touches a predetermined index level. Traditionally a third party, usually a government agency, is responsible for managing the parameter.

The key features of parametric contracts are the predictability and certainty they offer to insurers and customers, the ability to cover uninsurable risks, the capability to create customized risk coverages, the absence of information asymmetry, and a simple, transparent, low cost, and quick claims process. First generation of parametric insurance was more widely adopted by developing countries for natural catastrophe-related risks. As low-frequency but high-severity weather events inflict huge losses that are difficult to measure, parametric contracts offer certainty as regards the quantum of losses that insurers can model. Capital providers too prefer parametric insurance as they are not required to understand the complexities of the inherent risk vis-à-vis the assets they invest in.

The changing facets of parametric insurance

The insurance industry is under pressure from multiple forces such as new technologies, changing customer preferences, and the evolution of new business models. The drastic increase in the

frequency and severity of events from the risk triad of climate change, geopolitical tensions, and cyber-attacks, are disrupting the risk landscape and making it unpredictable. Consequently, insurers are introducing parametric products as a cost-effective and flexible solution.

Changes to parametric insurance are happening at multiple levels.

- Coverage is shifting from conventional catastrophe risks to cover previously uninsured catastrophes, non-catastrophe, intangible assets, and emerging risks.
- Customer segments are expanding from governments and risk aggregators to corporations, small and medium enterprises, and individuals.
- Parametric triggers are evolving from immediate weather-related to prolonged weather-related, non-weather-related, and innovatively derived.
- Third parties that manage the parameters are changing from government agencies to authentic private companies, industry bodies, and even decentralized sensors.
- Product positioning is changing from a cheaper substitute to conventional products to either a stand-alone innovative offering, where no conventional product is available, or integrated with conventional products to complement coverage for gaps.

Consequently, insurers are revisiting the existing parametric products related to natural catastrophes to make them more comprehensive and provide innovative coverages. New parametric products are being launched to protect against risks that are either not covered by conventional products or the existing products offer insufficient coverage. For instance, in addition to covering extreme events, parametric products offer coverage for adverse weather events such as too many rainy days, too many windy days, or too many hot days, and how they impact the business. Losses due to business interruption or a fall in revenue caused by weather events that do not result in damage to physical assets are also covered by parametric products. For example, indirect losses due to prolonged rain or a heat wave that could delay construction projects and result in cost overruns and penalties, or a rise or fall in the water levels of rivers impacting businesses that are dependent on it are covered by parametric products.

New parametric products also cover non-weather-related risks such as political unrest, trade sanctions, supply chain disruptions, reputation damage, cyber-attack, and loss of intellectual property. In addition, parametric products protect retailers, hotels, and theme parks from income losses due to a drop in footfall because of a terror alert, a bomb blast in the neighborhood, or the outbreak of a pandemic. For retail customers, the most popular product available today is for flight delays. Another innovation for the retail segment is to offer parametric cover exclusively for the deductible amount in a traditional contract.

Technologies orchestrating the reinvention

The new technologies that have emerged from the fourth industrial revolution are transforming insurance business models, products, and processes. The availability of granular, reliable, and real-time data from various trusted sources is the most powerful driving force that triggered a revolution in risk management. This explosion of data is opening a flood gate of opportunities for insurers to review the existing risk equations and introduce new variables for recalibration. This change is leading to the reinvention of parametric solutions to cover risk scenarios that were earlier uninsured or unrecognized.

The proliferation of connected sensors that include internet of things (IoT) devices and wearables is the core cause for the data deluge. The growth in geolocation technologies, drones, and satellites is playing a vital role in the way data are sourced. Advances in technologies to seamlessly transmit the data from hyper-localized sources and the availability of storage and compute power are enabling higher speed and accuracy in interpreting data and changing the way decisions are made. The democratization of data sources and their reliability is helping even non-governmental third-party reporting agencies to manage these parametric indices. Advances in data analytics and artificial intelligence (AI) models help in the creation of a wider range of measurable and objective digital parametric triggers for new risks and amplifies the ability of insurers to design new parametric coverages.

AI systems facilitate the gleaning of insights from both structured and unstructured data sources. For example, they help analyze public sources for negative sentiment to ascertain reputation risk or to consume data received from satellites to derive parameters related to the progress of a weather event, levels of moisture in the soil, and so on. AI systems help identify the data associations between discrete events to construct parametric coverages for business losses. In addition, the industry is closely watching the confluence of distributed ledger technologies (DLT) and parametric products. In fact, the industry is already experimenting with DLT by leveraging its immutability and smart contracts to record predefined parametric indices and automatically trigger claim payouts.

The future of insurance

The complexities of climate change, geopolitical tensions, and cyber-attacks not only increase the risk frequency and severity but also create new risks. Parametric coverages will be ideal for building resilience against such unpredictable risks and losses. The widespread adoption of digital technologies, sensors, and AI systems will influence the evolution of smart ecosystems and connected insurance models. The flow of granular risk data from them will enable insurers to micro-segment risks and derive new parameters representing those risks. In this connected environment, risks such as liability, cyber-risk, and so on will be extremely dynamic and therefore challenging to assess. Parametric layers that coexist with traditional indemnity coverage may become the norm to cover such dynamic risks. In addition, in connected insurance, due to continuous and precise assessment of risk, it will be easy to differentiate between low-risk and high-risk customers. Consequently, the terms of insurance and cost could vastly vary between them. Without the cross-subsidization that is available in traditional policies, high-risk customers may be denied coverage or may have to buy it at prohibitive prices. Parametric contracts will be the most efficient way to cover such risky customers at an affordable price.

Over the last decade, insurers have embraced digital ecosystem models to offer risk prevention, risk mitigation, and risk remediation. As these ecosystems mature, many future insurance coverages will become embedded, invisible, and parametric. Connected ecosystems will also pave the way for the redefinition of payouts where some benefits such as risk prevention services or value additions could take the form of value-added services instead of a financial compensation. The confluence of parametric insurance with new models such as usage-based insurance, on-demand and peer-to-peer, as well as new customer segments such as gig workers offer innumerable product innovation opportunities for insurers. Riding this wave and reaping benefits will depend on insurers' ability to revisit their product portfolio, identify coverage gaps, and leverage new technologies to create innovative risk transfer products.

About the author

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Srivathsan Karanai Margan, is a domain consultant with the Insurance Research and Innovation Lab in the Banking, Financial Services and Insurance (BFSI) business unit at TCS. He has over 25 years of experience across core insurance and information technology. Srivathsan holds a Bachelor's degree in mathematics from the University of Madras, Chennai, India, and an MBA in systems management from Madurai Kamaraj University, Madurai, India. He is a Fellow of the Insurance Institute of India and a certified associate in Annuity Products Administration from Life Office Management Association, USA.

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