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Assembly Insurance Committee Informational Hearing

Parametric Insurance: What it is & the Role it Could Play Wednesday, October 9, 2024

I. Introduction

Each year it seems that California, and the planet, are facing more extreme weather events due to the impacts of climate change. Recovering and rebuilding from these events can be costly, even with the help of insurance. Often, protection gaps exist beyond what traditional indemnity coverage can provide.

Parametric insurance policies offer an innovative option to help address protection gaps in disaster coverage. Parametric insurance is a type of policy that covers a set of predetermined conditions (parameters) rather than actual losses and pays a set amount after a triggering event occurs and the parameter is met.

This informational hearing will take a closer look at parametric insurance, including examining what it actually is, how it works, to what extent it is already available and being used, and how it can serve as an additional tool to aid in disaster recovery by helping to improve financial resiliency.

II. Overview: What is parametric insurance?

Parametric insurance is a type of insurance that insures a policyholder against the occurrence of a specific event and pays a set amount based on the magnitude of the event as opposed to the magnitude of the loss.

Unlike a traditional indemnity policy that compensates for the exact loss, parametric insurance pays-out a predetermined amount when certain triggers (parameters) are met. Sometimes parametric insurance may be referred to as index-based insurance.

The trigger(s) determine the payout in a parametric insurance policy and can take a number of forms, depending on the type of risk the policy is insuring against. The only real criteria for a trigger is that it is independently observed and objectively measurable in relation to the actual loss. The specific parameters of the trigger are dictated by the policy terms. Some parametric policies may also have more than one trigger that has to be met before a payout occurs.

Parametric insurance can provide funds to disaster victims more quickly than the traditional claims process.

Parametric insurance is helpful to fill protection gaps and provide coverage for more difficult-to-insure risks. There are three key benefits to parametric insurance: (1) faster payouts; (2) flexibility; and (3) the possibility to provide coverage for difficult-to-model losses.

Because the policy only comes into effect if certain triggers are met there is no need for the traditional claims process to occur, meaning payouts can happen much more quickly.

Additionally, not needing to undertake a loss adjustment means the overhead costs associated with the policy are much less.

With a parametric policy, the insurer and policyholder have agreed to a set payout amount in the event the trigger is met. This payout amount is fixed as part of the insurance policy and contract. The payout can be used to cover any economic loss related to the covered event,

making a parametric policy much more flexible than a traditional indemnity policy. A parametric policy may be attractive to firms insuring against business interruption risks in the event of a natural disaster, government agencies responsible for disaster response, and non-governmental organizations that provide assistance during disasters. For example, a construction business could have a parametric policy that would require the insurer to payout \$5 million in the event of a 6.0 or higher magnitude earthquake in a defined location.

The risk of insurance fraud is also minimized, even for larger contracts, because the payment amount is predetermined, standardized, and based on an independently verified trigger.

However, a payout from a parametric policy may not fully cover losses and generally should not be relied on as the only form of coverage. Parametric insurance has the potential to work alongside a traditional indemnity policy either to supplement coverage or to help pay an amount equal to the deductible. It is also possible for a hybrid policy that would pay an immediate lump sum based on the trigger/parameter and then proceed with the claims process for any additional damages and costs.

Triggering events must be able to be measured objectively and coverage sets in once the predetermined conditions are met. Generally, the trigger is measured by an independent third-party or index. Additionally, not all policies are triggered by a single event, some may require more than one trigger to occur prior to a payout. Some examples of triggers include the following:

- Crop yield
- Data breach
- Earthquake magnitude and intensity
- Floor water levels
- Hurricane wind speeds
- Market index
- Length of a power outage

III. Parametric Insurance in Practice

Advantages and Disadvantages of a Parametric Policy

As previously mentioned, a parametric insurance policy is designed to fill protection gaps to supplement a traditional indemnity policy. A parametric policy is not intended to be the only type of coverage or a standalone solution. However, there are several advantages to parametric policies that should be considered.

First, a parametric policy allows for a faster claims process. This is one of the most attractive elements of a parametric policy and a key difference between a parametric insurance policy and a traditional indemnity policy.

The traditional claims policy can take months, or even years, to resolve. Whereas, with a parametric policy payment can occur within weeks. This is because a loss adjustment is not required and the fact that the payout is a set amount. Therefore, once the triggered event(s) occur and the index threshold is met payment can be sent. Essentially, because the insurer knows how much the policy will payout prior to the loss claims can be settled almost immediately and the insured can be paid quickly.

Another advantage of a parametric policy is that it is easier for insurance companies to calculate premiums accurately and efficiently. This is due to the fact that the payout is fixed and is based on the likelihood of a triggering event occurring. This is especially helpful when addressing extreme events that occur with a low frequency.

Third, a parametric policy is designed to cater to different coverage needs and therefore can provide more customization and flexibility. In general, the payout can be used for almost anything and are not tied to living expenses or temporary repairs as with a traditional indemnity policy. Additionally, the coverage limits, conditions for compensation, and term lengths can all be adjusted to meet the needs of the customer.

Finally, a parametric policy has the ability to provide a better consumer experience. As discussed above, individual consumers are not the main target for a parametric policy, but the benefits a parametric policy can provide to consumers impacts all types of consumers – including government entities. Because everything is predefined there is no ambiguity or potential for confusion with a parametric policy.

Note, there are some disadvantages to a parametric policy that should be considered and are also some of the reasons these policies are not always the best fit for individual consumers. To start, parametric policies are not widely used or available and may be unfamiliar to insurance buyers and brokers who are used to buying or selling traditional indemnity policies. The premiums for a parametric policy may also be higher. This is largely due to the distribution and capacity costs associated with these types of policies. A parametric policy also may not payout enough to cover the full cost of damages or losses. In addition, most insurance laws are designed to address indemnity insurance and the traditional admitted market. For this reason, most parametric products are not fully regulated.

Who Uses Parametric Insurance

Parametric insurance products are generally offered to public entities to help fill insurance and budget gaps caused by natural disasters. But, these products may also be available to businesses, non-profits, and individuals.

Public Entities and Governments

In the wake of a natural disaster public entities, including local and state governments, are often the first to respond and assist residents. However, limited financial resources may pose a barrier to how much assistance can be provided. Additionally, it is likely that a public entity or local government will have to be addressing other loss resources, buildings, etc. following a natural disaster and will need to rebuild. Natural disasters may also present long-term financial strain on local governments because of impacts on their tax base.

For these reasons, public entities and governments may turn to parametric insurance policies. A parametric insurance policy may be purchased as a fiscal risk management tool and to help maintain financial resiliency. Generally, the public entity that purchased the parametric insurance policy will have few limitations on how the funds can be spent. Therefore, these policies can serve as a resource to help provide aid and rebuild with the only caveat usually being that any funds received under a parametric policy may not be duplicated and used for the same purpose as federal public disaster assistance.

Businesses and Non-Profits

All of the general benefits of parametric insurance also hold true for businesses and non-profits that want to take out a parametric policy. However, parametric insurance can also offer additional benefits to businesses and provide another tool for a business's risk management strategy. This, in part, requires the business to understand the specific hurdles it may face and the industry-specific ways parametric insurance may be used.

The following examples show how various industries can leverage parametric insurance as part of a response to weather conditions and extreme events:

- **Agriculture.** A parametric drought protection program would have payouts triggered by predefined rainfall levels, which can aid in maintaining crop yields and financial stability.
- **Tourism and hospitality.** Parametric insurance can provide rapid financial support following extreme weather events and natural disasters, enabling quicker recovery and business continuity.
- **Manufacturing and retail.** Businesses in areas prone to other extreme weather events can use parametric insurance to mitigate supply chain disruptions and protect assets.

Originally, parametric policies were only offered to fill protection gaps and help cover physical damages caused by natural disasters. However, now policies may also cover non-physical damage, like business interruption losses. This helps businesses cover the costs of having to delay operations due to the impacts of catastrophes near them and ongoing health and safety

concerns, even if the business itself did not suffer any physical damage. A business can use the proceeds from a parametric policy to help recover from a number of economic losses, such as impacts on employees, customers, and supply chain issues. It may be difficult for a business to precisely estimate how costly recovery will be following a natural disaster, making parametric insurance an effective solution to help manage exposure to cost of risk.

Individuals

Although parametric policies are not generally marketed to individual consumers, a parametric policy could also be beneficial to someone whose policies come with high deductibles and multiple exclusions. For example, an individual consumer may seek out a parametric policy that pays out a lump-sum amount equal to the deductible on a traditional policy. This could then help to reduce an individual consumer's out-of-pocket costs. Similarly, if losses are less than the deductible on an individual's traditional policy a parametric policy may help to reduce out-of-pocket expenses and cover the losses that the traditional policy won't.

A parametric policy may also help individuals cover expenses related to natural disasters, like floods and earthquakes, that are not covered by their traditional indemnity policy or are events that are covered but with high deductibles.

In general, a parametric policy may be appealing to individual consumers who are looking for speed and transparency in payments, want a way to help reduce out-of-pocket expenses especially if they have a high deductible, or believe their losses might be less than their deductible.

It is important to remember, especially for individual consumers that are looking to a parametric policy that these policies only should serve as a supplement to traditional coverage and also will only be triggered when the events and metrics dictated by the policy occur. For example, if a parametric policy is for flood coverage and your home is damaged by a wildfire the parametric policy would not be triggered.

Where Parametric Insurance is in Use & Examples of Parametric Insurance

The following are just a few examples of parametric insurance in use in California, across the country, and internationally. Note some of these products are designed for use by individual consumers and businesses while others are for various types of government entities.

Los Angeles Department of Water and Power (LADWP)

LADWP has developed a wildfire mitigation plan that includes a first of its kind wildfire parametric catastrophe bond that helps to provide coverage on a parametric trigger basis, tied to a wildfire burning in a specific location. This bond and insurance coverage was designed in partnership with Aon.

Jumpstart (California, Washington, and Oregon)

Jumpstart Insurance is a parametric earthquake product for residents and businesses in California. It generally pays \$10,000 for an eligible event. In addition to California, Jumpstart also offers coverage in Washington and Oregon. Once an earthquake occurs the company reaches out to the insured and payout can be issued immediately.

StormPeace (Florida)

Assured Risk Cover offers a hurricane-related parametric insurance program for individual property owners and renters in Florida called StormPeace. The product provide payments based on the distance of the insured person's property from the hurricane's eye and the category of the hurricane when closest to the property.

Puerto Rico

In 2023, Aon created a parametric insurance program for Puerto Rico aimed at helping the island reduce its insurance obligation to the U.S. Federal Emergency Management Agency (FEMA). The insurance provides coverage against hurricane and earthquake perils. The program is designed to provide Puerto Rico with access to diversified sources of capital and help in closing the protection gap.

AboitizPower (Philippines)

AboitizPower worked with Aon to develop a windstorm model and parametric insurance product. AboitizPower is the Philippines' leading provider of renewable energy with approximately a million customers. The goal of the policy is to help AboitizPower address key property damage issues and business interruption exposures.

Caribbean Catastrophe Risk Insurance Facility (CCRIF)

The CCRIF is a catastrophe fund for primarily Caribbean governments. CCRIF insures against hurricanes and earthquakes and was started in 2007. It was formed as the first multi-country risk pool and offers multi-peril short-term liquidity for disaster stricken countries 14 days after event. The CCRIF is backed by a parametric policy that limits the financial impacts of tropical cyclones, earthquakes, excess rainfall, and the fisheries sector to Caribbean and Central American governments.

The African Risk Capacity (ARC)

ARC pools funds from African Union members and insures against climate risk by using a satellite weather surveillance system. The organization provides parametric insurance services to AU Member States and farmer organizations, employing innovative financing mechanisms to pool disaster-related risk across Africa and transferring it to international risk markets.

Future Uses for Parametric Insurance

Technology has always played a key role in the evolution of the insurance industry and has already played an important role in improving the quality of data used in parametric insurance. Many of the companies that provide parametric insurance are already taking advantage of technology by incorporating data science and artificial intelligence, such as using on-the-ground sensors to detect water levels during floods. However, as increased use of remote sensing technology and satellite data becomes available these could be among the key drivers of the growth of parametric insurance and how it is used in the future. For example, this technology

could allow for the ability to measure hail stone size or the depth of floodwaters in real time at a specific site.

As previously discussed, there is also the potential for the continued growth of coverage for non-damage business interruption, including allowing insurers to use economic performance metrics to measure risk. This may also include a business having parametric insurance to help cover for gaps in cyber, pandemic, and terrorism coverage left by traditional insurance.

IV. Role for Parametric Insurance in California

The California Department of Insurance (CDI) Climate Working Group was established in 2019 in Insurance Code Section 12922.5 (Senate Bill 30 (Lara) Chapter 614, Statutes of 2018). The purpose of this working group was to examine issues related to climate change, resilience, and insurance. The California Climate Insurance Working Group published a report in 2021 titled "Protecting Communities, Preserving Nature, and Building Resiliency; How First-of-Its-Kind Climate Insurance Will Help Combat the Costs of Wildfires, Extreme Heat, and Floods." (<https://www.insurance.ca.gov/01-consumers/180-climate-change/>) This report, in part, explored the role parametric insurance can have in California as a tool to help strengthen climate disaster financing and increase community resilience.

According to the report, parametric insurance could be used in California to protect against threats where insurance is uncommon, such as extreme heat impact, earthquakes, or flooding. These policies also can be helpful to stabilize local government tax revenues in the aftermath of disasters.

The reports suggests the potential to develop pilot projects in various communities throughout the state, such as parametric drought protection or a risk transfer to protect against economic disruptions caused by strong snowstorms or high rainfall events. Parametric insurance could provide cost-effective funding for preparation by local governments for an impending storm. The benefits of parametric insurance for disasters are that they can provide funds much faster

and the payouts can be used flexibly for any needed and unanticipated expenditures, deductibles, or lost revenue, which are typically insurance gaps.

The report also notes that California should consider establishing an extreme heat risk pool, which would transfer aggregated risk from counties or cities to the state. Such a pool could make use a parametric insurance model. A parametric insurance model would increase the speed at which disbursements reach governments by relying on a set “trigger” based on reliable data to quickly release payments. According to the report:

[A] trigger protocol could be developed in California in partnership with meteorologists, climatologists and others, building on the Urban Heat Island Index for California developed by the Office of Environmental Health Hazard Assessment at the California Environmental Protection Agency. Based on this tool, a trigger would be set for when payment from the risk pool’s parametric policy would be made to the local government jurisdiction a few days prior to, during, or immediately after the heat wave. The local jurisdiction would decide how to use the funds.

Note that there has been some legislation in recent years as a result of the report:

- AB 970 (L. Rivas) of 2023, would have required CDI, upon appropriation, to establish and administer the Climate and Sustainability Insurance and Risk Reduction Program and would have created eight climate insurance pilot projects to reduce physical risks from flooding and extreme heat in communities with high risks and low insurance uptake. While this bill would have arguably allowed for parametric solutions, it did not explicitly require the pilot projects to use parametric insurance. This bill was vetoed by the Governor.
- AB 2238 (L. Rivas) Chapter 264, Statutes of 2022, was signed into law to require the California Environmental Protection Agency, in coordination with the Integrated Climate Adaptation and Resiliency Program (ICARP) and CDI, to develop a statewide extreme heat ranking system.

Additionally, given the state's concerns regarding climate change there has also been proposed legislation to establish an Extreme Heat and Community Resilience Program. Both of these proposals did not include an insurance-related component:

- AB 2076 (L. Rivas) of 2022, would have established the Extreme Heat and Community Resilience Program in the Governor's Office of Planning and Research as a grant program to prevent or mitigate the impacts of extreme heat. This bill was held on the Senate Appropriations suspense file.
- AB 585 (L. Rivas) of 2021, would have established the Extreme Heat and Community Resilience Program through ICARP to coordinate the state's efforts to address extreme heat and the urban heat island effect and to provide financial and technical assistance to local or regional entities for improving resilience to extreme heat and urban heat island effects. This bill was held on the Senate Appropriations suspense file.

Because parametric insurance is an innovative tool that makes use of technology it could potentially have countless applications in California moving forward and be a valuable resource for local governments looking to strengthen their financial resiliency and expand their toolkit for disaster response.

V. Conclusion

Parametric insurance offers a way to provide more flexible funds to victims of disaster in a streamlined and efficient manner. As risks continue to grow and evolve parametric insurance may become a more appealing option for policyholders and government entities that are looking for innovative and efficient solutions to transfer their risk and cover protection gaps left by traditional indemnity policies.

If used as a tool to complement traditional insurance, parametric insurance has the possibility of providing additional financial protection against disasters and increasing resiliency. A parametric policy could help provide limited financial relief and supplement traditional

indemnity policies when natural disasters occur. Because parametric insurance is intended to fill disaster-related protection gaps there could be a place for parametric insurance in relation to the current challenges facing California insurance market. However, parametric insurance is not a cure-all to the current crisis.