

Episode 3: What Role Might Parametric Earthquake Insurance Play in Recovery?

Introduction: Welcome to *Ready to Recover*, a podcast series in which guest experts take a closer look at what people may experience when seeking to finance their recovery after a damaging earthquake. These discussions consider common challenges and options, including what can be done to prepare before disaster strikes. This podcast series is produced by CREW@crew.org with funding from the National Earthquake Hazards Reduction Program.

Standard homeowners and renters insurance policies exclude earthquake coverage, so it must be purchased as an add-on or separate policy. These conventional earthquake insurance policies include a deductible and require a claim adjustment process. Parametric earthquake insurance is another type of product available in some areas. The following podcast explains what parametric insurance is and explores the role it could play in the recovery of households and communities after an earthquake.

Kyra (CREW) This episode features an interview with Kate Stillwell, who is the founder of the parametric earthquake insurance company Jumpstart and President of Parametric Insurance at Neptune Flood Insurance. She has long been engaged in addressing disaster resilience, having begun her career as a structural engineer and earthquake risk consultant in California. She's also a co-founder of the US Resiliency Council, and a co-founder and acting CEO of Firebreak risk, a consumer app for wildfire mitigation. Welcome, Kate.

Kate Stillwell Thank you, Kyra. Super happy to be part of this podcast.

Kyra (CREW) So to begin with, what drew you from structural engineering and earthquake risk consulting to parametric earthquake insurance?

Kate Stillwell It's the umbrella of disaster recovery. So, structural engineers help keep people safe in this big, scary event, which is an earthquake. But—safe buildings are really important; they're not enough to be able to have our communities recover from disasters. And what really shone a light on that for me was hurricane Katrina. I was several years into my career designing buildings to be safe in earthquakes, and I got this pit in my stomach when I saw the levies breaking and a whole community of people completely displaced and having their entire lives upended. And I thought to myself, oh my God, Oakland in the next big earthquake could

be the next New Orleans. And what can we do to make sure that not only is there safe infrastructure, but there are all these other spokes of disaster recovery: good governance, social connectedness, and the one I focused on, which is enough money flowing in to make the case for people to be able to stay, tough it out, and help their neighbors, and plow back into the economy and rebuild their lives.

Because the power of economic stimulus is, it creates so much leverage, because one of the little-known facts from Hurricane Katrina is that fully 40 percent of residents at that time left and never came back. And so what does that do to change a community? It's a very significant impact. One of the things we learned from COVID is that economic stimulus from the public really made a big difference in people being able to get over the hump. So how can we tap into private money to be able to serve that role of economic stimulus after the next big disaster, particularly earthquakes? And so that was really the driving factor for me, is how do we attack more branches, more spokes of this disaster recovery problem, particularly the one with the most leverage.

Kyra (CREW) Okay. So let's—for those who are listening that aren't familiar with parametric earthquake insurance as one of these tools for recovery after an earthquake, can you tell us a little bit about how that works once an earthquake occurs? If a person has a parametric earthquake insurance policy, what happens?

Kate Stillwell Yeah. I didn't go from structural engineering thinking to myself, okay, I've got to be an insurance salesperson. I really kind of just stumbled upon it. I learned in business school, I went to business school with this premise of, okay, how can we use our collective time and talents to engage more of these levers of disaster recovery? And stumbled upon this notion of catastrophe bonds. So it's a bond that works like a regular financial bond: there's a pot of money that's posted, and the people who put up the money earn an interest rate every year. But in the case of the catastrophe bond, the investors lose their money—not in the case of a default of the borrower, but in the case of the occurrence of a predefined trigger or event in the case of a catastrophe.

So, for example an issuer of the bond puts up a hundred million dollars. They get paid, let's just say 3 percent per year by the people who would benefit from the hundred million dollars in the case of a catastrophe. They pay. And then in the case of the catastrophe over the course of the bond, if that catastrophe occurs, then the recipients—the beneficiaries—receive that money, receive that hundred million dollars. And the most

classic example of this is—one of the first examples of a catastrophe bond is—Tokyo Disneyland was the beneficiary of a hundred-million-dollar bond. (I used that as the example, but it's just a coincidence that it's the same as one of these first classic bonds.) In case—And the trigger was if there was a magnitude 7.3 or larger within a geographic box defined, predefined, then Tokyo Disneyland would get a hundred million dollars. And if it didn't happen during the three-year timeframe of the, of the bond, then they lost the opportunity to get the hundred million dollars. And in exchange, they paid 3 percent. In this case, again, it was the same as the example, 3 percent per year to the issuer of the bond. As it turned out—that was in the late nineties—as it turned out, there was no major earthquake in Tokyo Disneyland during the course of the bond. But nevertheless, they paid their three years times 3 percent, their \$9 million for the privilege of not having to keep a hundred million dollars in their balance sheet in their bank accounts, so that the hundred million dollars would've been available for—, to tide them over and to pay for their operational expenses, recognizing that they would've experienced a major loss in revenue of people coming to the park, not even to mention what the damage might be at the park in the first place. But here's—, this is a balance sheet solution for Tokyo Disneyland.

My light bulb went off, and I said, wow, catastrophe bonds. Why don't we have micro catastrophe bonds for individuals living in earthquake country? Because there's not going to be nearly enough money flowing in, given that earthquakes are excluded from regular insurance, public aid is going to be too little, too late (and FEMA is oftentimes the first to admit that), people have very little in savings, in liquid savings—the dollar amount in liquid savings: a lot of—, more than 50 percent (the numbers vary, based on the numbers published by Bankrate), but something around 50 percent of people don't have access to a thousand dollars' worth of liquidity. So low savings rate, excluded from insurance, not fully reliant on public aid: this is going to be a financial disaster.

So let's use this mechanism of cat bonds in a really small format to be able to get people a quick infusion of liquidity at the time when they need it most. So, how much money are we thinking they're going to need? Now, the idea is not to rebuild the house, but just to tide them over, to be able to fill a gap of operational need, operational expenses. So the same concept as Disneyland. Okay, let's just, like, fill the gap of the downtime that we're going to have. So, a reasonable amount might be \$10,000. So this is now getting to the definition of how parametric works: a predefined lump sum of money that is dispersed upon occurrence of a predefined

parameter, thus parametric, and that parameter could be related to a particular disaster or event.

So in the case of earthquake and the product that we created at Jumpstart, there is—, our flagship product is a \$10,000 lump sum dispersed immediately upon occurrence of an earthquake with a PGV of 30 centimeters per second or larger. And the reason we chose that is it corresponds to an MMI of seven and a half. Our MMI trigger in Washington and Oregon actually is a little bit lower, recognizing that the state of the built environment, the building codes lagged a little bit behind California. So instead of a seven and a half, we have an MMI of seven as the trigger. So that corresponds to a peak ground velocity of 20 centimeters per second, as opposed to 30 centimeter per second. So, \$10,000 upon occurrence of an MMI 7 in Washington and Oregon; \$10,000 upon occurrence of an MMI 7.5 in California. And Jumpstart right now is available in California, Oregon, and Washington. And we have it modeled out to be available in other states but haven't released it yet.

Kyra (CREW) So how would parametric insurance work if a damaging earthquake is followed by a damaging aftershock?

Kate Stillwell Yeah, fair question. So the way we design the policy is that aftershocks are defined by time as opposed to seismology. So obviously the mechanism, the physics of aftershocks is completely related to seismology and geophysics. But for the purposes of the insurance policy, we said that there could be as many as two payouts per calendar year, but only one payout in any given seven days in, in any consecutive seven days. So if there is another earthquake causing a peak ground velocity exceeding the trigger seven days later, seven days later or later, then there could be two payouts for an individual. So, you know, if there's an aftershock, if there are two earthquakes, each with a PGV of 30 centimeters per second, it's going to be even more chaos than just one. And so it's very plausible that people's tide-over money is going to need to be doubled. And so we've built that into the policy language and also into the pricing for the potential that that might occur, on the side of the insurance company.

The reason we chose \$10,000 is because it represents approximately two-months' worth of the median income. So if people are experiencing disruption and life is messed up, even if they don't have damage to their home, if there are closed workplaces, closed schools, general disruption to life, even if there's not mass destruction in a community, there's going to be massive disruption in an earthquake that large, and two-months'

worth of the median income is meant to be just enough to get over the hump.

Kyra (CREW) This is kind of a two-part question. If you are looking at, sort of, people considering a parametric earthquake insurance policy, in what situations would you say, This is a really effective choice for you? And in what situations would you say, Well, maybe this isn't as well suited to what you're looking for in terms of financing your post-earthquake recovery?

Kate Stillwell A lot of our customers are thinking about Jumpstart not as an insurance policy, but in respect to their savings. So, probably two-thirds of our customers are buying Jumpstart for the fact that they don't have to tap into their savings. And let me give two examples. One is one of our customers, whose name is Frank. Frank is getting close to retirement, but he still has family expenses that he has to pay for, he still has a mortgage on his home; but he doesn't want-, he has a retirement nest egg, and he doesn't want to have to dip into it in the case of an emergency. He recognizes-, he's old enough to know that an earthquake, like any other societal disruption, is going to cause unexpected expenses for him and his neighbors and his family. And he really wants to preserve that retirement savings. And so he's thinking of Jumpstart as a hedge against having to tap into his retirement savings.

Likewise, one of our customers, whose name is Samantha, is now a condo owner, but when she bought Jumpstart, she was a renter, and she bought Jumpstart, again, so that she could preserve the savings that she was saving up in order to buy her condo. And now that she is a condo owner, she's buying Jumpstart again so that—and again, in respect to her savings—because she recognizes that after an earthquake, all of the unit owners in her association are going to have some sort of loss assessment, and she doesn't want to have to dip into her savings or her credit card, to have to pay for whatever loss assessment is going to happen.

For people who are thinking about earthquake insurance and want total loss protection—Jumpstart does not provide that. Even if you buy more than \$10,000, because we have \$20-, \$40-, \$50,000 policies available, it's still not enough to rebuild a home in Oregon, Washington or California—it costs a lot more than that. It's really just intended to fill the gap. And so folks who want a total limit insurance policy—Jumpstart is a supplement to that, or maybe it helps cover the deductible. But most of our customers are thinking about Jumpstart less like an insurance policy and more like a, a guarantee or a warranty. Like, “Oh, okay, well here's your

consolation prize," for lack of a better word, "for this bad thing that you're going to have to live through."

Kyra (CREW)

Okay. So—and just as a quick follow up of that, especially for those who are not familiar with how a parametric policy works—how does it compare to regular indemnity insurance in terms of, like how quickly it pays out, and claims processing, and any of the rest of that? I mean, like what people—, I'm thinking more of if you're in a recovery situation, you know, and you've got a parametric policy, what do you have to do? And how quickly will you see the funds from that?

Kate Stillwell

Sure. Good question. So indemnity, just for those who—, in case your listeners are not familiar with that word, because it's kind of insurance jargony, means just a regular insurance policy that you're used to—kind of bread-and-butter—that has a deductible, and you have to go back and forth with a claims adjuster: you have to experience damage to your physical property, and then you have to claim that you experienced damage, and then somebody has to come out and look at it. And then you have to pay the first piece of that loss in the form of a deductible. So as opposed to parametric: there's just this pre-agreed lump sum of money, and you get it whether you have damage or not. It's dispersed simply upon occurrence of the trigger. And so to that end, it's faster (the payment is faster). It can be more affordable, a lower cost, depending on the amount of money that you agree on in advance, recognizing that the amount of money to be dispersed is meant to be only a supplement, meant to only fill the gap and bridge the gap. It's not meant to represent your total asset value.

So, one of the differences is that for parametric, there is no claims adjuster who comes by, you don't have to experience damage. So it takes away a lot of the hassle of the regular indemnity insurance. But if you have both policies, then you still have the claims adjustment process of the indemnity policy. We thought that when we founded Jumpstart in 2018 and started selling policies, we had this hypothesis that the features of parametric that people would like most are the fast payouts and the affordability. And as it turned out, one of the things we learned is that, in contrast to what we expected, what people liked the most was feeling like they were on a level playing field with the insurance industry, with the insurance company—the fact that there's no arbitration, the fact that they know exactly how much money they're going to get, and under what circumstances.

Because it takes away that feeling of victimization or helplessness that people can feel when they're face-to-face with an entity that has a lot of power and a lot of resources compared to the individual. This element of no arbitration has a dimension of social equity—people feeling like there's a level playing field and there's a lack of—, there's not the level of informational asymmetry between the little guy, the individual, and the large insurance company with the resources. And so that really was a surprise to us because it reinforced the idea that parametric insurance has this potential to be a great equalizer and to help jumpstart, help advance and increase the momentum of collective recovery. So, when individuals feel empowered and have enough resources, they—, it accelerates the process of recovery for everyone, because they're more engaged, and they have the resources to be able to start that process of building back.

Kyra (CREW) What aspects of parametric insurance do you think people tend to misunderstand or miscalculate, in your experience?

Kate Stillwell Again, when we—, back when we started this journey, the folks in the insurance industry expected—they kept warning us that—customers would misunderstand the fact that it's not total-loss coverage. They were worried that customers would interpret it as a substitute or a replacement for regular indemnity coverage. That's not the case at all. The customers that have bought Jumpstart so far, far and away understand that it's only meant to provide a jumpstart, which is part of the reason we chose that name, even though it's a somewhat overused name, to be able to communicate in a very succinct way what parametric does do and what it doesn't do, so that people understand that it's not this substitute. They're getting that, they understand that; and they love this idea of just getting the money, and it doesn't—, it makes them feel like it's not the “i” word.

A lot of people really hate the negative connotations of insurance. And to have a product that they feel like they know exactly what they're getting takes away the uncertainty of not knowing what they're going to get and how much.

To go back to the question though, I'd say that the most common, not exactly misunderstandings, but questions that people have are one of two categories: One is, can I buy more coverage? And the answer is, yes, but only up to a point. You can't buy, you know, a total that's as much coverage as you would need to replace your home, because then there's the question of, it might be a windfall. Of course, when it's a shortfall,

everybody understands it's going to be a shortfall. When there's a big difference between the asset value and the amount of money coming in, then the shortfall is obvious.

When there's a pretty narrow difference between the amount of money coming in and the asset value, then the potential for windfall is much higher. And then it doesn't respond like an insurance product. If people are getting much more money than they need, then it starts to become a gray area where it's no longer insurance. So people want more money, but that's not really what the insurance, the parametric insurance is meant to provide. The second category of inquiries that we get is, can I buy a parametric policy that pays out at a lower threshold? And again, the question of windfall is the one that we're most worried about, because this is not a lottery ticket, and this is not meant to be a financial derivative of just betting on the earthquake. And in a magnitude 5, there might not be that level of societal disruption that's going to cause everybody to need money for something—because that's really what the parametric is meant to provide. Just recognizing that even if you don't have damage, you're going to need money for something.

Kyra (CREW)

What role do you envision for parametric earthquake insurance in the future of disaster recovery? Where do you see it going from here?

Kate Stillwell

Oh, thank you for this question. I love this question, because Jumpstart started as a product that's direct to consumer, and that's how we're still selling right now. We also sell through insurance agents, although we've had a lot more interest from people just finding us organically directly. But the—, but where it's really going to have potential is when groups, organizations, or community organizers find ways to get disbursements, parametric payouts, to their constituents or beneficiaries or stakeholders. So one example of this might be a municipality where they identify a certain group—maybe it's all of their residents, maybe it's all of the residents receiving benefits from the city, maybe it's residents in certain housing—whatever it might be, to buy a parametric policy that disperses a predefined amount of money specifically for those residents to help tide them over and help make the disaster be less of a cause of greater inequity. Because one of the things we know is that disasters exacerbate wealth inequalities, disasters exacerbate inequities, social inequities.

And so at some point in time, municipalities, NGOs, community organizations, nonprofits, houses of worship, are going to identify and realize that parametric insurance is going to help their stakeholders get over the worst of it. So that, for example, let's imagine that a house of

worship says, okay, we want to buy enough so that we can help—, we already know who the hundred members of our community are who need the most help, and we want to be able to provide a thousand dollars per person. So then, some members of the community, the house of worship, might say, okay, we'll pitch in and pay for a policy that helps those hundred people get a thousand dollars each. So, a hundred-thousand-dollar policy is going to cost maybe somewhere around the order of \$2,000 a year.

And so, you know, the—, maybe five patron families might decide, okay, we can all pitch in together to pay this \$2,000 a year. And then in the case of the great earthquake, these hundred individual members of our community are going to have a thousand dollars each to help get them through the worst of it. One other example is, you know, nonprofits, like a food bank, so how much are they going to need to be able to disperse? And so that's what really excites me in terms of the potential, a parametric to help stimulate disaster recovery economically, is when it's adopted by groups who have the potential to get this disbursement out to the people who need it most.

Kyra (CREW) And before we wrap up, Kate, are there topics or questions that you're—, you'd really like to talk about, and you want to just pose the question for yourself?

Kate Stillwell Some of my structural engineering friends sometimes ask me, why did you go over to the dark side of insurance? Why did you go over to the dark side, which insurance is? And I've got to say, I have mixed feelings because as a consumer myself, I haven't had always the best experience with insurance. And now that I'm on the inside of insurance, I also see . . . inefficiencies (is the nicest way to say it) within the insurance industry. Nevertheless, insurance plays a really interesting role, an important role in society, and has a very noble purpose, which is, it is the financial underpinning of being able to, for any society to be able to take risks and go and face risks. And so, if it weren't for insurance, then there would be a downward spiral caused by any bad event, whether it's a natural catastrophe or other situation. And so, insurance helps shore up and help prevent that downward spiral. And so parametric insurance is one of the ways that the insurance industry as a whole is fulfilling that noble purpose of forestalling a bad event from spiraling into what could be a financial disaster. And that's really what keeps me going, even when facing the inefficiencies or other challenges.

Kyra (CREW) Thank you very much for your expertise and input. We really appreciate you participating in this episode.

Kate Stillwell My pleasure. Happy to help.

Pascal (CREW) This episode of the *Ready to Recover* podcast series was produced by crew.org with funding from the National Earthquake Hazard Reduction Program.

The podcast transcript and show notes, including links to resources mentioned by the speakers, are available@podcast.crew.org. You can continue to explore this and related topics by tuning into the other episodes in the *Ready to Recover* series.

Thank you for listening.