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TRANSCRIPT

ESG Now Podcast

“Asset Risks in a Time of Flood”

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Bentley Kaplan

Hello and welcome to the weekly edition of ESG Now, the show that explores how the environment, our society and corporate governance effects and are affected by our economy. I'm Bentley Kaplan, your host for this episode. On today's show, we're going to pull on our gumboots, or wellies and wade into the slushy world of flooding. Because if you're an asset manager or owner, or a bank or an insurer, you'll already know that flooding can be a costly proposition and one that is looking costlier under a changing climate. But what may be less obvious is how risks differ across different flood types, why location matters, but like up to the nearest meter. And why climate models are needing to be sharpened up so that they can better project this very costly risk. And we are going to talk about all of that. So thanks for sticking around, let's do this.

If you live near a coastline or a big river, then maybe you're coming into this episode with a sense of confidence, even bravado. "I know flooding, some of my best friends have been affected by floods." But in this episode we're going to zoom out from single flooding events. What we are talking about here is how single flooding events add up over different regions and different timeframes. And how in aggregate these floods and their collective damages could dent investment returns and raise risks for investors. Or for insurers, how it raises the number of claims and potentially prices out customers as premiums crank up. And it's true that all of these financial market stakeholders will be thinking of all different types of natural hazards, but flooding may well be at the top of their list as one of the costliest running into tens of billions of dollars in damage every year.

Figuring out just how much of that billions of dollars of damage could be affecting your portfolio, whether that's in loans or insurance policies or investments, is a little trickier. But a good place to start is probably with the floods themselves. To do that, I called up Matthias Kemter. Matthias knows a whole lot about flooding. He's also a member of MSCI's Climate Risk Center and based out of our Potsdam office. Matthias has been a pretty busy guy of late, and some of his most recent research on acid risk and flooding is available to the wide world on MSCI.com. If in doubt, just try out a blog he co-authored with our colleague, Rob Barnett, titled “Navigating the Financial Risks of Flooding.” What really gets Matthias up in the morning though, is figuring out the way that climate change is going to affect flooding or the risk of flooding. And first up, Matthias told me that there are actually three main flood types.

Matthias Kemter

Sure. So the first one I'd like to talk about is coastal flooding, which is also the one that's most commonly associated with climate change. And this happens when you have high tides in the ocean, combined with storms that push the water from the sea to the land, causing flooding near the coast. The link to climate change is very simple. As you get warmer climate, the ocean expands because the water gets warmer and the sea level rises, and at the same time, land ice is melting, glaciers, Antarctica and so on, and increasing the amount of water in the ocean.

And then the second type is fluvial flooding, which is I think one you see most often in the news because it looks very catastrophic and it occurs when a river holds more water or gets more water than it can hold. This is most commonly caused by heavy rainfall upstream of the river, accumulating in the river over time. Sometimes for days or even weeks depending on the size of the river. Snow melt and soil moisture can also play a role. And that's why it's a bit more complex here to find the climate change aspect, because rainfall will most likely increase in most parts of the world. But soil moisture and snow melt might change in very complex ways. So there will be parts of the world where fluvial flood risk will decrease and other parts where it will increase.

And the third and final type is pluvial flooding, which actually is the most common type and one that everybody has seen at some point in their life. It's just when you have too much rainfall in one place and the ground can no longer capture it. So first you will form puddles and these puddles will grow and grow and grow. And at some points you will have whole rivers running down your street. This is very common in urban areas where you have lots of impervious surfaces, concrete, asphalt, so the water can't penetrate into the ground. And the climate change link again is relatively simple. Hot air can carry more water than colder air. So as the globe is warming, you have more water in the atmosphere and rainfall becomes more intense. And the same time pluvial flooding becomes more intense.

Bentley Kaplan

Right. So let's just get this out of the way toot-suite. Two of the flood types are called fluvial and pluvial, which sound less like real words and more like things that my seven-year-old would make up on the fly, just to round off a tricky rhyme. But alas, these fun sounding words have a harsher reality. Fluvial flooding is basically when a river overflows its banks, mostly from too much rainfall, but also snow melt. And rainfall also leads to pluvial flooding, but this happens when the land or soil or substrate, the ground basically, can't soak up the rain fast enough. Either because there's a lot of rain or a lot of concrete or asphalt or both. Coastal flooding is when coastal waters rise over coastlines or upstream through rivers, and that's mostly happening through storm surges and has a lot to do with tides and rising sea levels.

And at a very high level, Matthias found that pluvial flooding is a risk to nearly one in three company assets. But that the potential damage from this pluvial flooding is much lower than from both coastal and fluvial flooding. And something that started to take shape as Matthias talked me through different flood types, was how site-specific these flooding events actually are. Because when we talk about something like a heat wave or even a tropical cyclone, we're not really thinking about how two neighboring buildings might experience very different outcomes. But in flooding scenarios, the exact location of your assets, and we're talking about a matter of a few meters, can make all the difference.

Matthias Kemter

So flood risk is a matter of centimeters, both horizontally and vertically in terms of elevation. And I like to think about an anecdote in my childhood where I fell asleep in the bathtub and left the water on, and so that caused my own little mini flood. And there was less than a centimeter of flooding in the hallway, but it's enough to cause wooden floorboards to warp. So really that first centimeter of flooding is the thing that's going to determine your flood risk and the flood damage, or a large part of it, at least. The same is true for real life floods, like outside floods. Because in those cases, whether your asset is exposed to no flooding or one centimeter flooding can make a huge difference. And so it's extremely important to get exactly the right location of that asset, be it your own asset or something that belongs to a company.

And it's even more important to get the right elevation for that location. So that's why flood modelers really pride themselves with their elevation models, which are very hard to get right on a global scale. And you can only get the right elevation data from that elevation data set if you have the correct location for your company asset or your private asset. So you need to really have top-notch location level data. You need to combine that with very good elevation data to be able to find out, is my asset exposed or not? And how much that might increase in the future. And that's why I think that flooding is the physical hazard where the quality of your location data plays the highest role or has the highest impact.

Bentley Kaplan

So yes, we have busted a myth there. Even climate risk modelers were once children. And as Matthias, and no doubt his family learned all those years ago, you don't actually need meters and meters of water to create a little bit of damage. And flooding plays out differently across different landscapes, especially when it comes to elevation. Knowing when certain flood types will occur, what will increase or decrease their impact and the areas they will affect is what flood models are all about. But unless you can put drawing pins on your flooding maps to mark where your assets are, it's going to be pretty hard to try and measure the potential impacts of that flooding on a loan book or portfolio of investments, or insurance policies. And Matthias has matched his skills in climate modeling and flood risks with MSCI's in-house geospatial asset intelligence database, which is where he gets those drawing pins to mark off assets on his flood maps.

And Matthias and team have quite a few drawing pins to choose from. As of August, the database contained physical hazard data for 912,142 individual globally distributed company assets, belonging to around 60,000 public and private companies. It's a whole bunch. Now in my final question to Matthias, I wanted to tackle the last part of this episode. It's something we've touched on, nipped around the edges, but it's actually the biggest moving piece in this whole story. Because if you've got a nifty database of company asset locations and you've got your flood maps nice and sorted, and you know your pluvial from your fluvial, from your coastal flooding, well, you might think you're home and dry so to speak. But these flooding maps are not fixed. Climate change is turning all the dials on where floods are happening, how often and how severely. And as Matthias would tell me, historical climate patterns aren't necessarily a good indication of how things are going to go in future, which makes modeling the changing face of flood risk, a bit of a pickle.

Matthias Kemter

The common approach to flood risk modeling was for decades to just measure flooding in a place, get a distribution of those flood heights, and then assume, okay, any future flood will be as likely as any past flood. But of course, with climate change, the floods that we saw 50 years ago are not the same floods that we're seeing right now, and those are not the same floods that we will be seeing in 50 years.

So no matter what the horizon is that you're thinking about, you always need to take into account climate change if you want to assess your flood risk. And this is most easily thought of again for coastal flooding, where of course if you have 20 centimeters of sea level rise, your flood risk is no longer going to be the same. And then you might have another 20 centimeters in the future. And again, your flood risk will change and both you as an investor need to adapt to that. But also the public needs to adapt to that and build adaptation, build flood protection based on that standard. And for that, you need to get a good estimate of what your flood risk is. And the only option to do that is to consider climate data and to consider forward-looking climate data.

In the case of coastal flooding, it's even more complex, because even if we would stop global warming today, we stop polluting entirely, global warming stays at the current level. We would still get more coastal flood risk because sea level rise will continue for decades and maybe even hundreds of years. Because ice is a thing that melts extremely slowly. You might have seen that at some point, if you look around in spring, it hasn't snowed for 30 days or two months and there's still these small piles of snow on the street side that just won't melt because they don't get enough sun or whatever.

And the same is kind of happening to Greenland and Antarctica. It's already too warm for some of the ice there, so some of the ice will melt. It just takes a very long time to melt. And as long as it melts, the sea level will keep increasing and coastal flood risk will increase around the world. So no matter what time horizon you're looking at, you need to factor in these changes to flood risk. And you need to look at climate data if you really want to assess your flood risk.

Bentley Kaplan

So there's some perspective. As a blunt instrument, climate change to date has meant rising sea levels and more intense rainfall, which has led to more damaging flooding of all three types, coastal, fluvial and pluvial. And as climate change continues, flooding impacts will rise in some places to be sure, but not uniformly and not in all places either. And figuring out your exposure to this risk, whether that's through investment holdings, or loan books, or insurance policies, is not going to be easy, especially across different climate change scenarios. But as Matthias and his family learnt many years ago after an overflowing bath, being prepared is half the battle.

And that is it for the week. A massive thanks to Matthias for his take on the news with a sustainability twist. If you want to find out more about this and similar research, please do go and check out the research and insight section on MSCI.com type flood into the search bar and you're A for away. I do also want to say thank you very much for tuning in, if you like what we're doing, then let us know. Drop us a review, rate the show on your platform of choice and tell a friend or a colleague about this episode. Thanks again, and until next time, take care of yourself and those around you.

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