# Extreme Weather: towards pricing climate risk

By Dr Quintin Rayer | Dec 6, 2018

The 2017 Atlantic hurricane season caused estimated damages of $265 billion. Given links between extreme weather and global warming how close might we be to some companies or sectors being held liable, at least partially, due to their activities? The answer may be that this is closer than many expect.

Environmentally-focused investors often consider climate risks. Research suggests that share prices in carbon-intensive industries may not reflect potential liabilities for damages from extreme weather events[1]. Investors concerned about the consequences of global warming may also be unaware that they can actively nudge companies away from destructive behaviours towards a more constructive role[2].

## Global Warming and Hurricanes

The Paris Agreement aims to hold increases in global average temperatures to well below 2°C above pre-industrial levels while pursuing efforts to limit increases to 1.5°C. The recent South Korea climate summit emphasised the need to contain warming within 1.5°C[3]. Current global warming stands at around 1.04°C[4], with the world heading for an increase of 3°C or more. However, even increases of 1.5°C are likely to result in more frequent extreme weather events.

The science is clear, a hotter atmosphere has a more energetic water cycle, and warmer air can hold more moisture, with the likelihood of more intense downpours. Climate change is therefore likely to increase the intensity, and possibly the frequency, of hurricanes. Human activities are well established as the primary cause of global warming. Cumulative carbon dioxide emissions are the primary driver of climate changes. Progress has also been made on the contributions to climate change from individual nations and companies, including changes in extreme event frequencies.

Hurricanes Harvey, Irma, Jose and Maria, which swept across the Caribbean in 2017, caused an estimated $265 billion of damage (£210 billion), compared with $211 billion in 2005 (all damage estimates are inflation-adjusted to 2017 dollars)[5]. Research suggests the precipitation intensity of a Hurricane Harvey scale event has increased by around 15% with the level of warming seen thus far[6], [7]. Extrapolating to 1.5°C levels, one might expect around another 7-8% increase in possible hurricane-induced rainfall intensity, although understanding exactly how storm intensities will change in the future is a very active subject of research.

## Who are the Emitters?

Cumulative CO2 emissions are the primary cause of global climate system changes, meaning historical responsibility can be allocated relatively directly. In 2015 fossil fuel industry activities accounted for 91% of global industrial greenhouse gas emissions. Since 1988 only 25 entities (both companies and state producers) accounted for 51% of global industrial emissions[8]. Seven of these top 25 emitters were publicly-owned companies, collectively accounting for 9.5% of scope 1 and 3 emissions between 1988 and 2015. Global average warming is currently increasing at about 0.2°C per decade. If emissions continue at this rate, the 1.5°C target could be exceeded by 2040.

## What would be the Consequences?

Although no legal precedent currently exists for climate damage liability from extreme weather events, it may be established in future. Apportioning responsibility for such damage is, in principle, possible.

The seven companies above have a combined market capitalisation around $1,190 billion (November 2018). If, hypothetically, they contributed 9.5% of the hurricane damage from 2017 ($25 billion), this would represent 2.1% of their market capitalisations, a significant sum, particularly considering that similar contributions might be requested in respect of other past and future extreme weather events.

If global warming increases hurricane losses, under a hypothetical climate liability regime, damage contributions of around 2% of these companies' market capitalisations might be anticipated increasingly frequently as each annual hurricane season rolls in.

Furthermore, this omits other climate change impacts, such as sea level rise, and could easily run to more substantial sums if they were also included.

## How Should Investors React?

The science of attributing extreme weather events to human-induced climate change is developing rapidly. However, the Paris Agreement explicitly rules out loss and damage estimates associated with climate change as a basis for liability. This makes it difficult to estimate how quickly investors may react to the possibility of companies having (or deciding) to make contributions for damages associated with climate change caused by their past emissions.

The barriers to a successful compensation case for climate damages remain substantial. But the developing science means the possibility remains. For major insurance companies or governments footing the bill, the prospect of multi-billion-dollar pay-outs may focus minds on whether the legal barriers could be overcome, since this may allow them to pass on costs.

## How this helps Advisers

Clients increasingly wish to invest ethically. Selective investment in firms facilitating the transition to a net-zero-carbon economy supports them, while refusal to buy shares in those companies failing to do so can make it harder for them to raise capital. Given the potential consequences, cautious investors might be concerned. Markets tend to anticipate trends so movement towards an active liability regime could risk shares in such companies becoming orphaned assets, with other investors reluctant to buy them, except at a significant discount. Given mounting evidence, investors may question whether these risks are priced into high carbon emitting firms shares.

Although this can be a challenging area, advisers can turn to wealth management firms with expertise in ethical and sustainable investing for support. With knowledge in this area, firms such as P1 can reassure both clients and advisers that their investments are appropriately placed while also helping to address issues such as global warming in addition to other social and governance challenges. The work that P1 has put into engaging with ethical fund managers should also give advisers confidence we have the skills to support them in this significant and growing area.

## References

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