

Climate scenario stress testing





Climate change and the world's response to it will have profound implications for all of us for years to come. Pension schemes – with long time horizons and exposure to a number of financial and demographic risks – will be particularly affected and we must all make sure that funding and investment strategies are designed with climate risk in mind.

Even without the obvious professional responsibility to consider climate risk, new regulations will soon make it mandatory. There are new requirements for pension schemes to report in-line with the Task Force on Climate-Related Financial Disclosures (TCFD), and these include testing the “resilience” of the funding and investment strategy in at least two climate change scenarios. These rules already apply to private sector schemes over £5bn and will be rolled out to £1bn+ private sector schemes and all Local Government Pension Scheme funds soon.

Taking the stress out of stress testing – how we can help

Whether for TCFD purposes or for strategic review, to make sure we are testing the resilience of the funding and investment strategy, we use a “stress test” approach. We take the modelling used to justify your strategy decisions and see how the results change if we rerun it with climate risks emphasised. If the changes are small, the strategy is resilient.

Our Approach

-  Is simple and doesn't rely on a huge number of new assumptions – making it easier to explain and justify to stakeholders.
-  Integrates fully into existing strategy modelling work – it gives you valuable insight and isn't merely an “add-on”.
-  Gives you quantitative answers in terms you will already be familiar with such as likelihood of success and downside risk – so you won't need to explain new concepts to your stakeholders.
-  Lets you compare the stress test results directly with the core results – so you can see immediately how resilient your strategy decisions are without worrying about differences in methodology.

Including our climate scenario stress tests in your next strategy review will help your understanding of climate risk and give you the evidence you need to satisfy stakeholders that it has been considered properly in strategy decisions.

How do our climate scenarios work?

High-level strategy decisions are typically made with the help of asset-liability modelling (ALM) results, in which we generate thousands of simulations of what might happen to assets and liabilities in future and analyse the whole set of outcomes. Instead of just looking at a single result we consider things like the proportion of simulations that “succeed” (e.g. reach full funding by a given time point) and the downside risk (how bad could things get?). The whole point of the ALM is that the range and distribution of outcomes is far more useful than the result of each individual projection.

To understand the impact of climate change we want to see how this range and distribution of outcomes might be affected, not just how one individual projection might unfold. To do this we have devised three scenarios, each stressing the whole set of ALM results. The scenarios represent three possible climate pathways, differing by how quickly and how strongly the world responds to climate change:

Green Revolution

Immediate and strong policy response to climate change
Expect to meet Paris Agreement target

Delayed Transition

No short-term response to climate change followed by later, more extreme, policy response
Expect to meet Paris Agreement target

Challenging Times

No response to climate change for many years
Expect to NOT meet Paris Agreement target



By stress testing the whole set of ALM results you can see whether the likelihood of reaching your target is significantly lower, and whether the “bad” outcomes are materially worse. Because these are the metrics you already use to set your strategy, you can understand instantly how resilient your strategy is to climate risk.

To learn more about our climate scenario stress testing, get in touch with one of our team:



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