

# Longevity improvements and regime shifts

✔ **Tim Gordon considers the slowdown in longevity rates and how pension funds can use these findings**

**M**ortality improvements have fallen off a cliff since 2011. The good news is that mortality is still improving. The less good news is that the improvements are lower than generally expected.

You can see this in the chart below of mortality for males in England & Wales from 1961 to 2017 – the steeper the slope, the greater the rate of mortality improvement. (We plot standardised mortality rates so that mortality rates in different years are comparable.)

The big picture is that mortality improvements have slowly accelerated since 1961, ending up with improvements of over 3 per cent per year in the first decade of this century. By any reasonable measure, this was a huge change. The drivers of those high improvements seem probably to have been the huge falls in deaths from cardio-

vascular causes, which in turn were likely related to cessation of smoking and improved treatments for heart disease, combined with the colossal year-on-year increases in annual healthcare and welfare spending – real government spending on the National Health Service was increasing at around £5 billion year on the year before the financial crisis.

But, as shown in the graph, mortality improvements slowed down around 2011 and have since averaged less than 1 per cent per year, which is low for the post Second World War era. The jury is still out on the causes, but the prime suspects are essentially the opposite of the causes of the earlier high increases. The longevity market was initially sceptical of the fall-off in mortality improvements. After all, until fairly recently, it was fashionable in some quarters to argue that actuaries were under-stating future mortality improvements. However, as

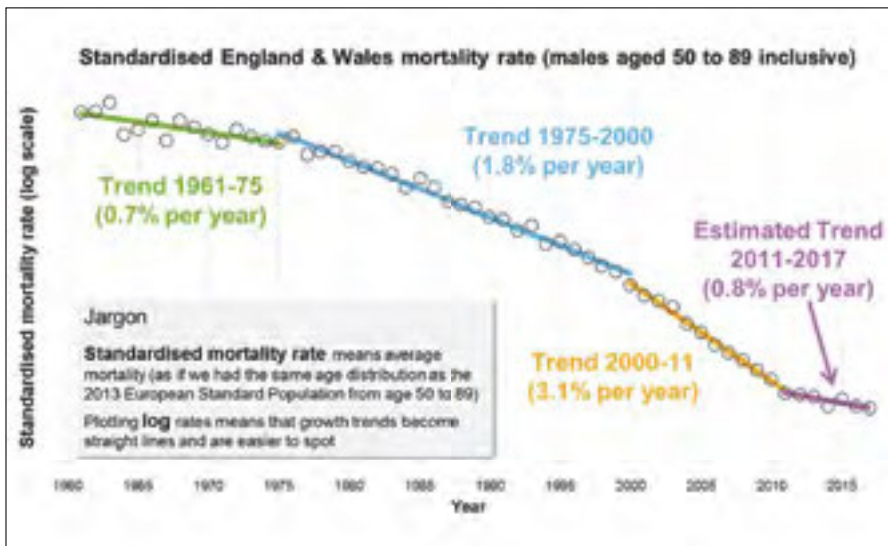
**“The critical question now is how to project future mortality improvements”**

the evidence has continued to build, the market has come to the view that the fall off is not simply a blip.

The critical question now is how to project future mortality improvements. The standard industry mortality projections model – the CMI Mortality Projections Model – works by smoothing past improvements. Importantly, this means that, with its default setting, it is still in effect including some allowance for the high improvements from before 2011 in its projections. But the CMI Model can be adjusted using its excitingly-named  $S_k$  (‘ess kappa’) parameter. This sounds like gobbledegook but if you are inclined to the view that future mortality will continue to track the purple line on the chart rather than return to a higher improvement rate in the next, say, five to ten years, then you – or at least your actuary – needs to know to use a lower value for  $S_k$  compared with the default.

And if you want to impress your actuary when discussing this, it may be good to know that the technical term for a sudden change in improvements is ‘a regime shift’.

To read more about the changing longevity and its impact on pension risk transfer – among other things, you may want to read a copy of Aon’s 2018 Risk Settlement Review. You can request your free copy by emailing [talktous@aon.com](mailto:talktous@aon.com).



Calculations by Aon using data from the Office for National Statistics and the CMI.

✔ **Written by Aon’s Risk Settlement Group partner Tim Gordon**

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