



## How much weight will you place on 2020?

Longevity Update – 2020 CMI model released with the core model showing similar long-term life expectancies to the 2019 model

In March, the CMI released the latest version of the CMI projections model. The 2020 version is the 12<sup>th</sup> full version of the model and incorporates data to the end of 2020.

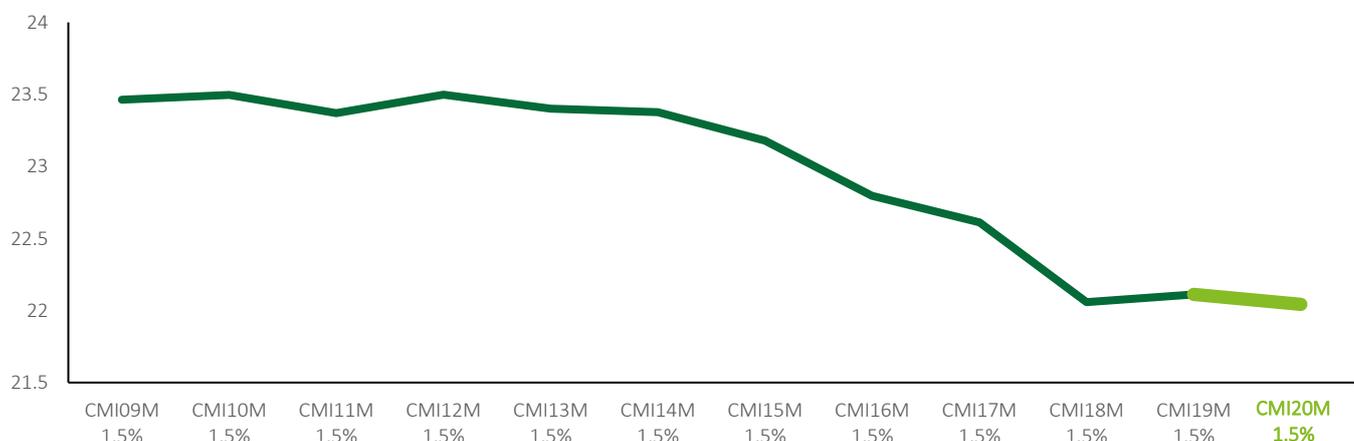
As stated by the CMI, while 2020 mortality experience will affect actuarial calculations, it is likely to be an outlier and not indicative of the future path that mortality rates will follow. For this reason, **the core version of CMI 2020 will place no weight on the 2020 calendar year data** when projecting mortality rates. However, users can modify the model to take account of data for 2020, fully or partially, if they choose.

The core model leads to life expectancies at age 65 being around four weeks lower than in the 2019 model for males and one week lower for females, corresponding to a **decrease in liabilities** of around 0.1% to 0.3%.

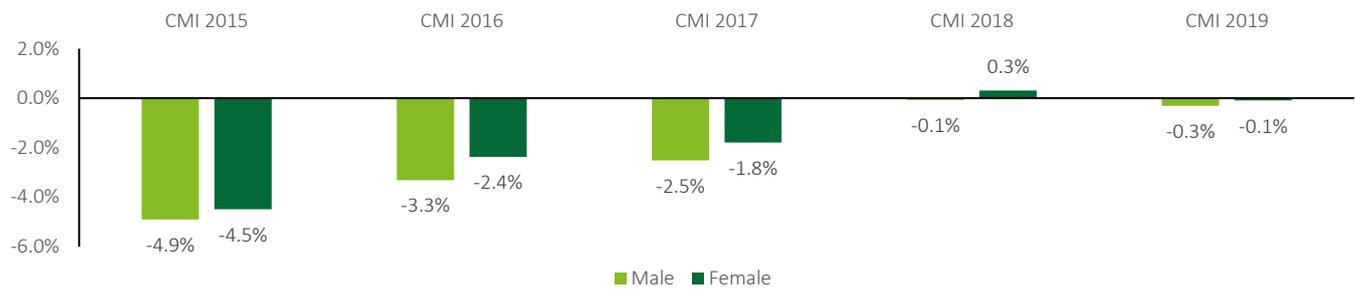
The charts below and overleaf show the progression of life expectancies under the successive CMI models and the impact of changing to the 2020 model on consistent assumptions. As shown in the charts, the 2020 model produces life expectancies similar to the 2018 and 2019 models, but lower than any of the other previous versions of the CMI model excluding 2018 and 2019.

Therefore, any users updating from any pre-2018 version will see a decrease in life expectancy and liabilities. Users who use a non-zero weight for the 2020 data will see a larger fall in life expectancy.

### Life expectancy of a male at age 65



## Change in life expectancy at age 65 by moving from the stated version to CMI 2020



Source: CMI data and Deloitte analysis

### Using the 'right' model

The CMI model is built using a large dataset collected from the Office of National Statistics and uses detailed calculations to blend short-term improvements (based on historic mortality data) and long-term estimates (based on a user's judgment and requirements). There are a number of parameters which will have a significant impact on the output of the model and therefore ultimately on the figures disclosed by users. It is important that users are aware of these parameters and the impact they have.

Below we set out details on the key parameters and the impact these have on the 2020 model alongside some commentary and the key considerations.



**Version of the model** – updating to the latest version will reflect the latest data available and any changes in methodology which will have been researched and analysed by the CMI. However, you may wish to consider the new approach to allowing for 2020's mortality data and your purpose. For example, estimations of buyout prices should look to match that used by insurers, who tend to be slower to update models as they take a prudent approach and want to fully understand the impact on pricing and reserving before implementation.



**Long term trend** – assumptions adopted continue to be focused around 1.25% or 1.5%. Ultimately, the appropriate assumption depends on your beliefs about future improvements, for example how medical advances and physical and mental wellness interact with toughening environmental situations and post-pandemic economic constraints.



**Smoothing parameter** (called  $S_k$ ) – a measure to reflect how we balance the past known data with future predictions and judgment. A higher smoothing parameter means less weight put on actual data. The majority of users will adopt the core value of 7.0 for this, as the evidence to move away from this is limited. However, some users may modify this parameter in conjunction with a specific 'A' factor or 2020 weighting to reflect their views. Careful justification of why this is theoretically appropriate should be considered.



**Initial additional improvements** – this is the place to allow for the difference in data sets between the ONS data used by the CMI and your pension scheme. A positive assumption (for the 'A' parameter) will increase the improvements in the immediate future and past years, resulting in higher life expectancies. Users should be able to justify their 'A' factor, including the use of a zero adjustment. Answering the question: "How does my membership differ to the general England and Wales population?" is the start point for this discussion. Whilst theoretical views would support higher improvements for pension scheme members, the latest analysis by the CMI shows that there is only a small difference between the SAPS tables (almost universally used now for pension scheme mortality in the UK) and the full England & Wales population. Elements like measures of deprivation levels of members would appear to be a key indicator of differing levels of improvements and should be considered when setting the 'A' parameter.



**Weighting (2020)** – the new parameter introduced into the CMI 2020 model to allow users to change the weight placed on the 2020 mortality data within the calculations. Due to the exceptional nature of the mortality data in 2020, following consultation, the core version of the CMI 2020 model will use zero weight, i.e.  $W_{2020} = 0\%$ . Users are encouraged however to consider the impact on their results of varying this parameter and to consider what their beliefs are on the impact of the pandemic on long term life expectancies.



0.5% change in Long Term Trend  
results in  
c.1.5% change in liabilities



0.5 change in smoothing parameter  
results in  
0% - 1% change in liabilities depending on scheme characteristics



0.5% change in 'A' parameter  
results in  
2.0% change in liabilities for males  
or  
1.5% change in liabilities for females



$W_{2020} = 10\%$  results in 0.5% - 1% reduction in liabilities  
 $W_{2020} = 50\%$  results in 2% - 4% reduction in liabilities

## Actions

Given the formal consultation issued last year and the regular updates provided by the CMI, the results of the CMI 2020 model provide no surprises.

All involved parties should consider moving to the CMI 2020 model at the next logical opportunity. They should discuss the impact of the 2020 mortality data on the model and understand where they may be introducing prudence within their assumptions, either intentionally or unintentionally.

Key questions to ask:



**Version** – what are you trying to achieve? How does updating to the 2020 model resulting in a small decrease in liabilities fit with your views?



**Long-term trend** – are you comfortable maintaining the same rate or should this be revised?



**Smoothing parameter** – have you been using this for the right purposes? How does this assumption interact with your other assumptions?



**Initial additional improvements** – How does your membership differ to the general England and Wales population? Does the most recent analysis reduce your views on the appropriate assumption? Have you allowed for the deprivation levels of your membership?



**Weighting (2020)** – Do you understand the impact this assumption has on your liabilities? Does your assumption match your expectations for the impact of the pandemic on long term life expectancies?

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## Finding out more

If you would like to speak to us about any of the points raised in this update, contact one of our team below or your usual Deloitte contact.



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