



Government
Actuary's
Department

Proposed mortality and family stats assumptions for use in Review of Factors

LGPS Scotland

Michael Scanlon FIA
Martin Smith FFA

April 2023



Review of Factors in 2023

Actuarial factors are used regularly in the administration of the LGPS Scotland

- To calculate the cash equivalent transfer values where members elect to leave the scheme to a different arrangement, or for divorce purposes;
- To calculate reductions (increases) to pensions on early (late) retirement; and
- To set various other terms of conversion in the scheme.

Financial assumptions

- The trigger for the factor review was a change to the SCAPE discount rate set by Treasury – announced following response to consultation

Demographic / mortality assumptions

- **GAD will recommend updated factors using proposed 2020 valuation mortality and family statistic assumptions**

Implementation

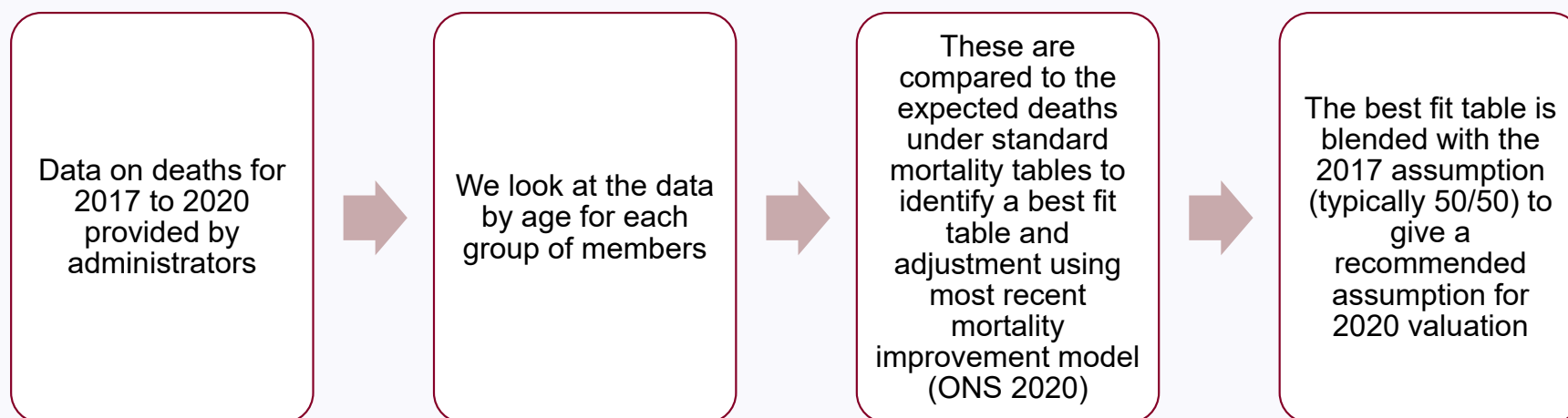
- CETVs now suspended following SCAPE announcement
- Factor tables will be prepared in batches and implemented over six-month period



Mortality



Process for setting mortality assumptions



Assumption changes since 2017 valuation

Mortality assumptions can be used to estimate the life expectancy of individual members.

Higher life expectancies mean a higher cost of providing benefits, as benefits must be paid for longer periods of time.

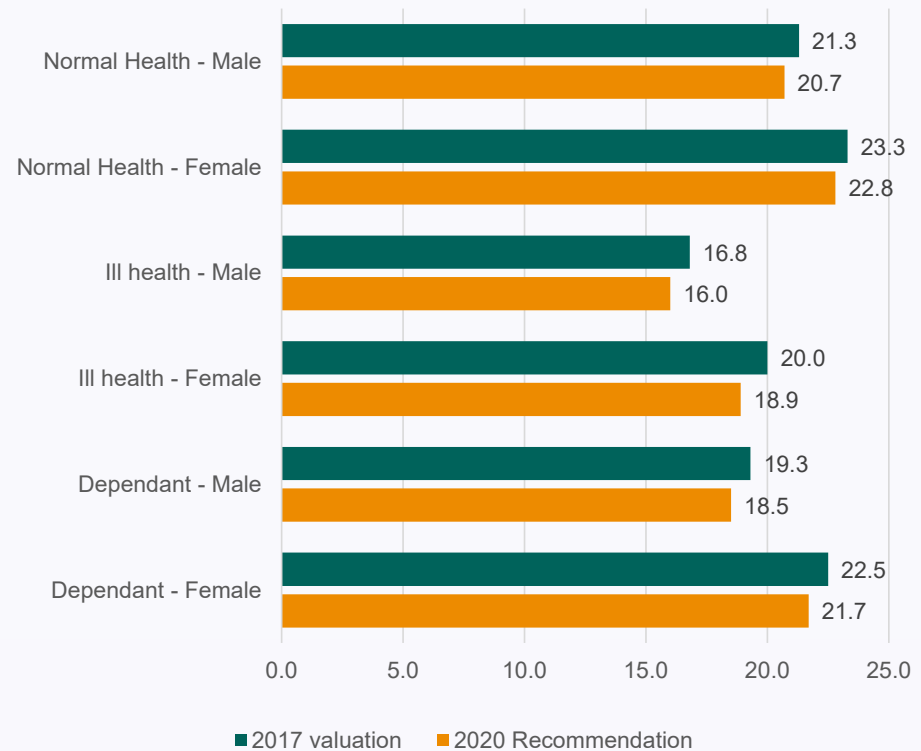
Lower life expectancies mean a lower cost of providing benefits.

The chart to the right shows the impact of our recommended assumptions:

- The **top line** is the assumption adopted for the 2017 valuation.
- The **bottom line** is the assumption we will recommend for the 2020 valuation, after best fit analysis to S3 models.

Note that the 2020 recommendation includes the change in mortality improvement assumption (to ONS 2020) which accounts for a reduction in future life expectancies of around 1 year.

Future life expectancies at age 65 (years)



Comparison with local fund valuations

Set out below is data collated as part of the 2020 Section 13 valuation in respect of average life expectancy assumptions adopted in local fund valuations, compared to proposals for the 2020 GAD valuation

				2020 GAD valuation *
Men				
	Min	Average***	Max	
Pensioner members aged 65 (with mortality improvements)	19.2	20.7	21.5	20.7**
Women				
	Min	Average	Max	
Pensioner members aged 65 (with mortality improvements)	22.4	23.4	24.7	22.8**

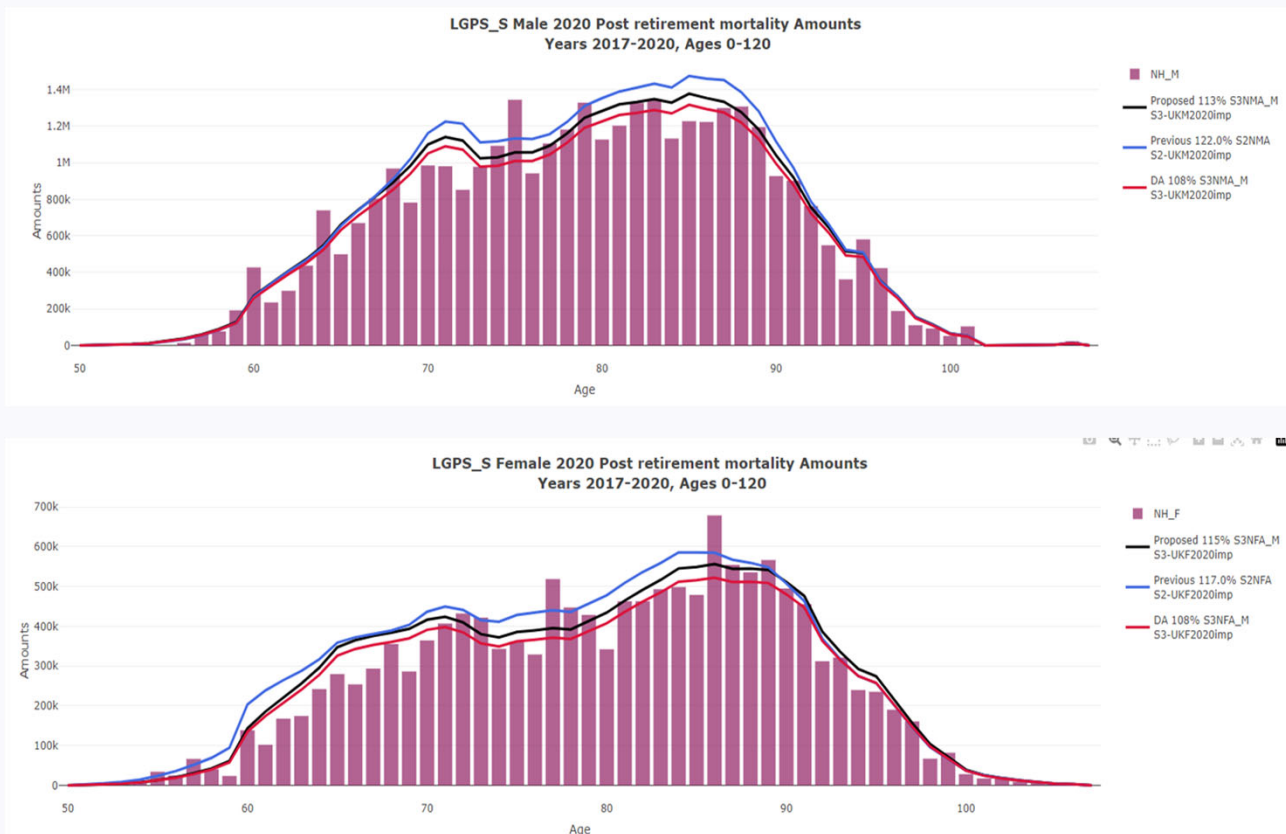
*Based on normal health pensioners

**Different improvement models (ONS model used by GAD vs CMI model typically used by local fund actuaries)

***The average local fund valuation has been weighted by number of funds, rather than liability.



Best Fit model - Normal Health Pensioners

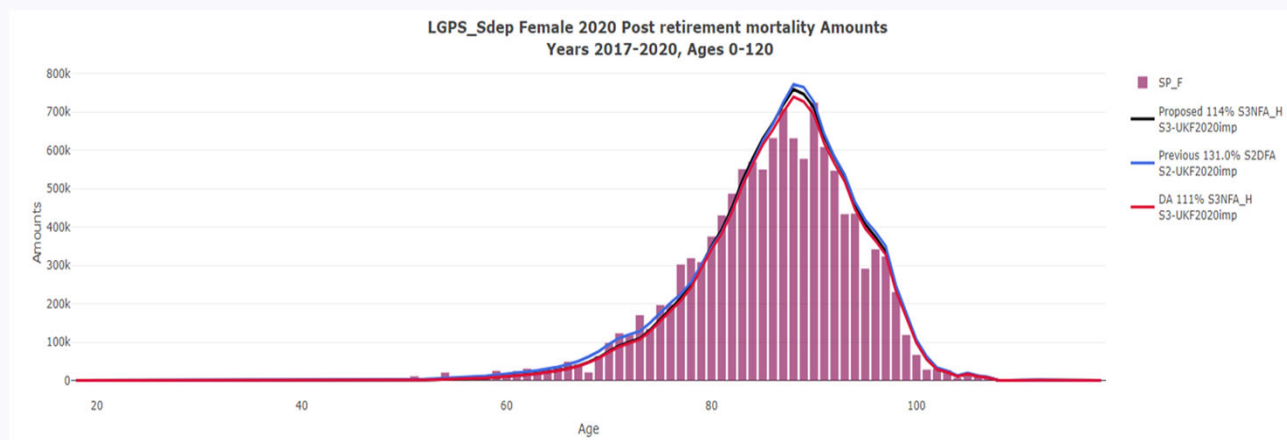
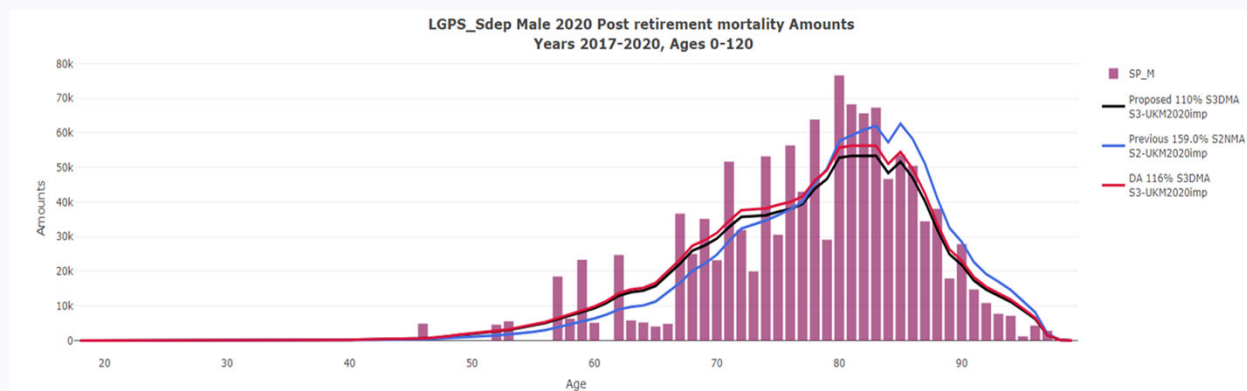


The charts to the left illustrate the following:

- The purple bars show actual death experience.
- The blue line shows the assumption from the previous valuation, updated to use ONS 2020 projections.
- The red line is the best fit assumption.
- The black line is the recommended assumption after 50/50 blending:
 - Males: 113% of S3NMA_M
 - Females: 115% of S3NFA_M



Best Fit model - Dependants

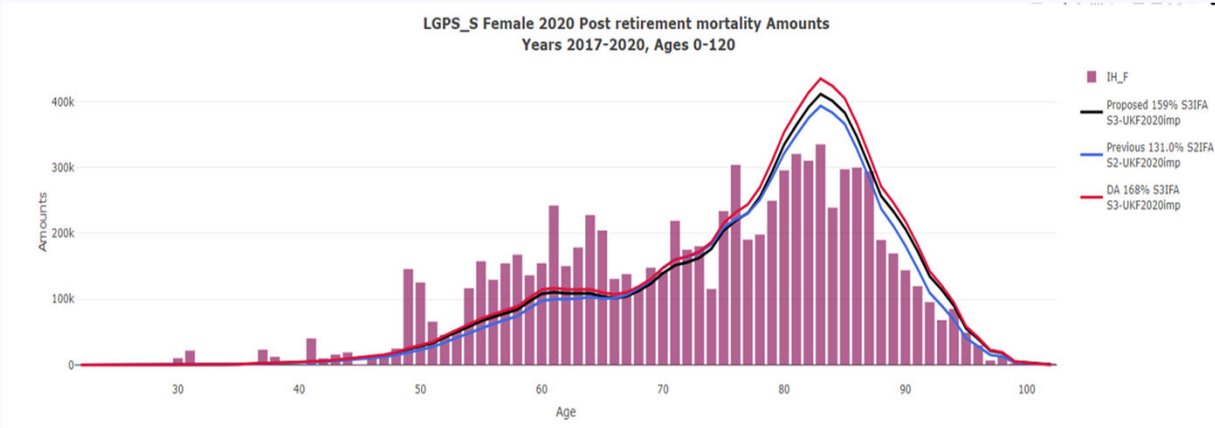
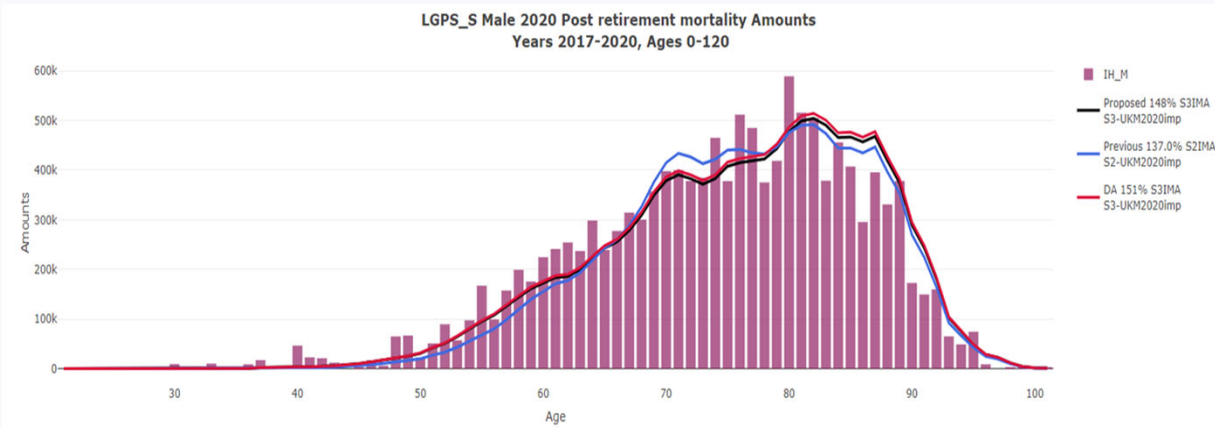


The charts to the left illustrate the following:

- The purple bars show actual death experience.
- The blue line shows the assumption from the previous valuation, updated to use ONS 2020 projections.
- The red line is the best fit assumption.
- The black line is the recommended assumption after 50/50 blending:
 - Males: 110% S3DMA
 - Females: 114% S3NFA_H



Best Fit model - Ill-Health Pensioners



The charts to the left illustrate the following:

- The purple bars show actual death experience.
- The blue line shows the assumption from the previous valuation, updated to use ONS 2020 projections.
- The red line is the best fit assumption.
- The black line is the recommended assumption after 50/50 blending:
- Males: 148% of S3IMA
- Females: 159% of S3IFA



Family statistics



Proportion married

Approach to analysis

At the 2017 valuation there was a lack of credible data to analyse so the assumptions were aligned with ONS population projection statistics.

For the 2020 valuation, we have analysed the survivor beneficiary type data which indicates whether a spouse is present or otherwise and tested this against the existing assumption.

The experience is not too dissimilar from expectations bearing in mind that we have a small dataset (the differential is also greater at lower ages where less deaths typically occur). Updating the assumption would not expect to have a material effect on costs.

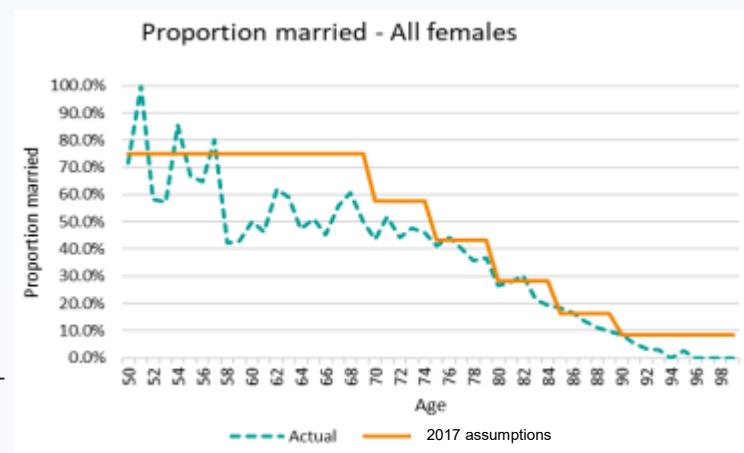
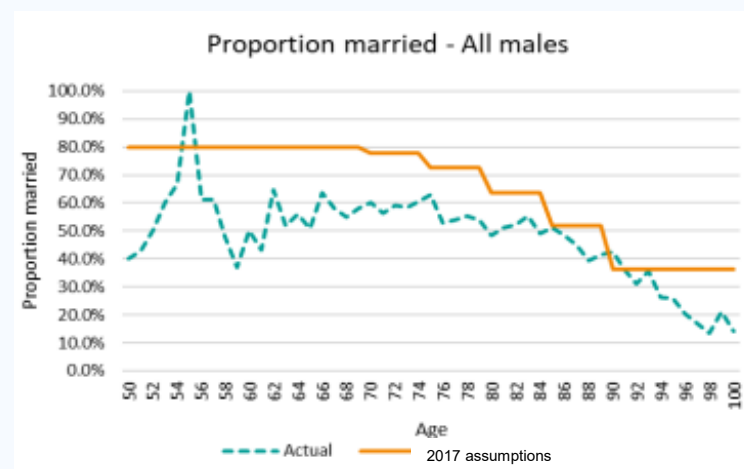
Limitations

Following the Goodwin case in 2020, the entitlement to a widower's pension was extended (deaths of older female members may have previously led to no widower's pension but following Goodwin a pension may now be payable). A restricted age range for females has not, however, been considered in the analysis because as the existing analysis is based on a relatively low volume of data and is therefore insufficient to draw firm conclusions from, adjusting the analysis to allow for Goodwin would not be expected to lead to a different recommendation.

Our proposal is to retain the 2017 assumption:

Future pensioners – proportion married/partnered at retirement

Males	80%
Females	75%

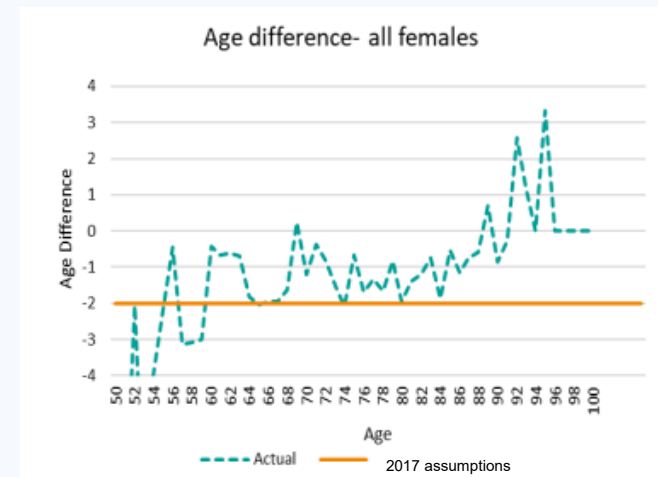
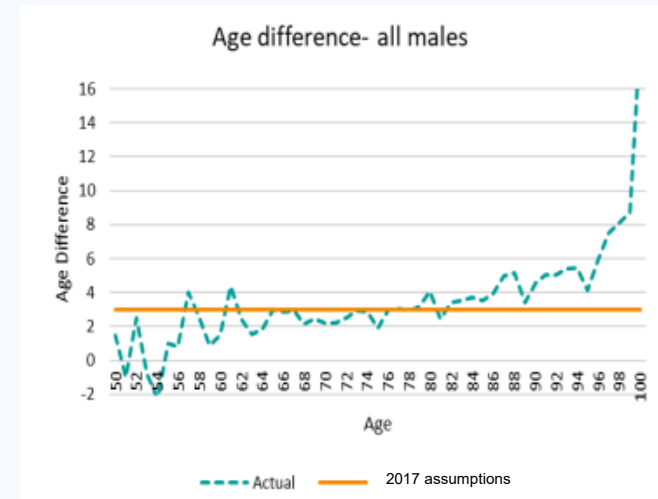


Age difference

Our analysis indicates that experience is close to expectations, particularly around most likely ages for a spouse / partner's pension to come into payment. Experience diverges at older ages, which is less material to calculations.

Gender	Average age difference (weighted) based on experience	Existing assumption
Males	3.3 years	3 years
Females	-1.3 years	-2 years

Our proposal is to retain the 2017 assumption



Appendix – Data used

Data on deaths for 2017 to 2020 has been provided by administrators. A summary of the data analysed is set out below:

	Analysis over 2017-2020
Number of members (2017)	151,461
New entrants	31,792
Leavers	(14,795)
- Deaths (no dependant)	179
- Deaths (with dependant)	12,851
- Exit - no liability	29
- Other	<u>1,736</u>
Estimated number of members (2020)	168,457
Actual number of members (2020)	170,866
Difference (actual minus expected)	2,409
Difference (in % terms)	1.4%





The Government Actuary's Department is proud to be accredited under the Institute and Faculty of Actuaries' [Quality Assurance Scheme](#). Our website describes [the standards we apply](#).

This work should be read in conjunction with the Factor Review Recommended Assumptions document dated 31 March 2023 and, when considered in aggregate, has been carried out in accordance with the applicable Technical Actuarial Standards: TAS 100 and TAS 300 issued by the Financial Reporting Council (FRC). The FRC sets technical standards for actuarial work in the UK.

The information in this presentation is not intended to provide specific advice. Please see [our full disclaimer](#) for details.

