

**The Actuarial Profession**  
making financial sense of the future

Mortality and longevity seminar  
Gavin Jones

## Mortality Trend risk

22 March 2011

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### An each way bet? Managing mortality trend risk

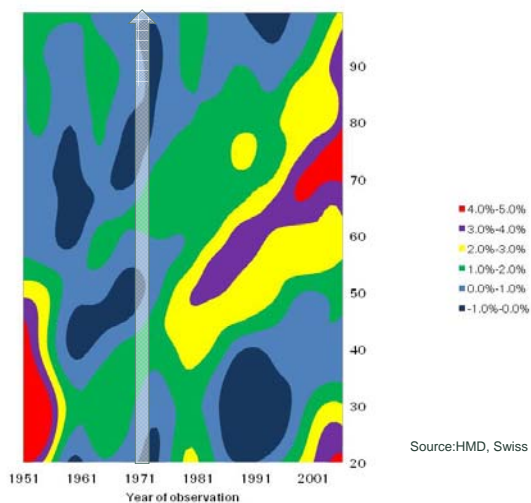
- Mortality trend systematic in nature
- Estimate \$20tr assets supporting longevity risk worldwide
- Compare to capacity of insurance sector
- No single model adequate...
- ...so substantial model risk.

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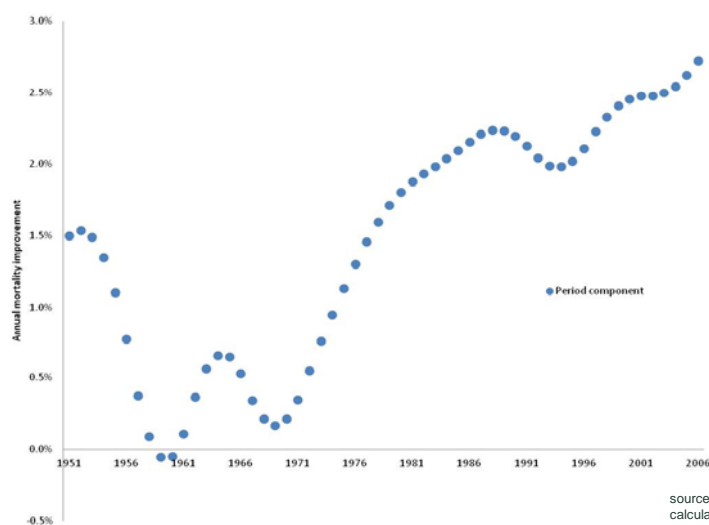
## Period component – England and Wales males

Average over age to estimate period



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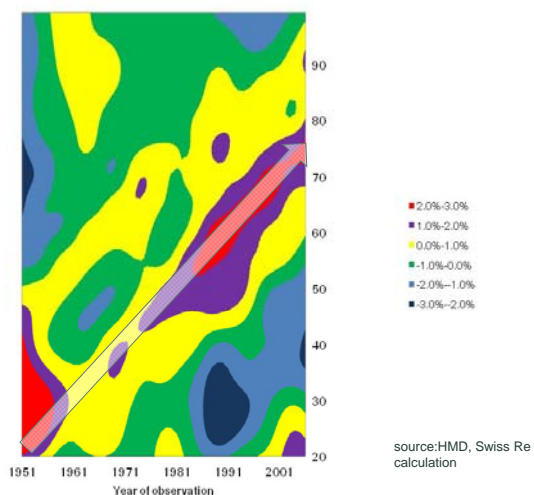
## Period component – England and Wales males



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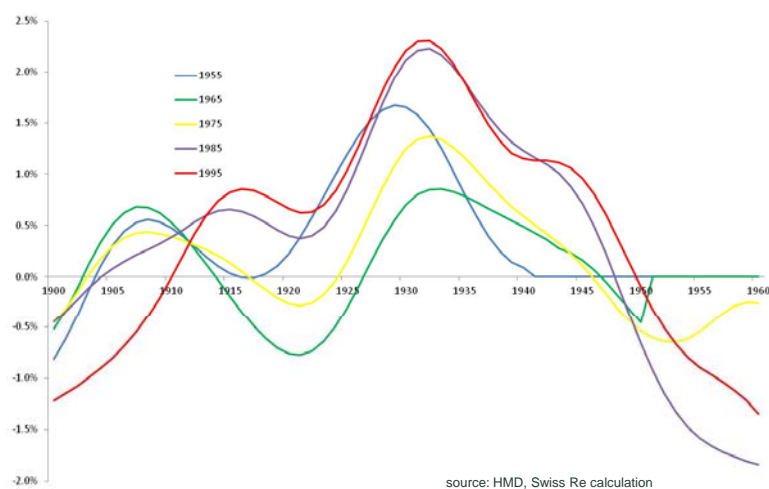
## Cohort Component – England and Wales males

Graph shows  
observed-period.  
Average along cohort  
to estimate cohort  
component



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## Estimating the cohort term – England and Wales males



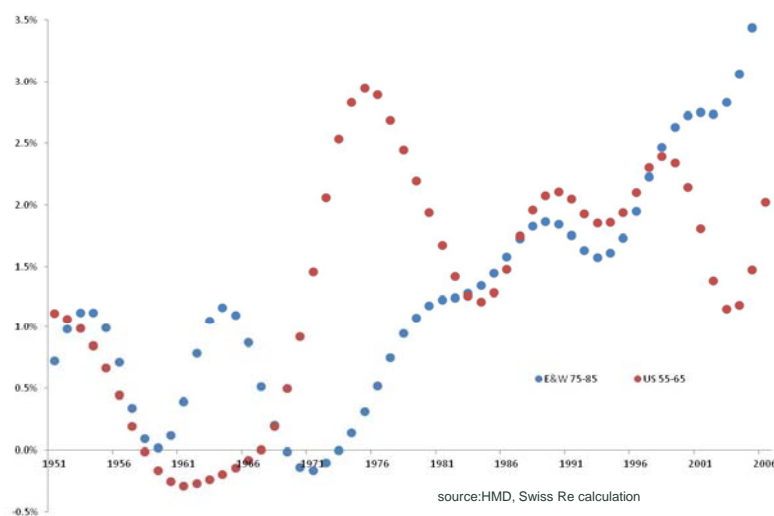
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## Longevity – a one way bet?

- Mortality trend includes period and cohort components
- ... but with identifiability issues
- Hedging one way risk includes both period and cohort components
- some of which offset existing exposure...

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## An each way bet? US male lives (55-65) vs E&W male lives (75-85)



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## Kortis capital

- Swiss Re has entered into a transaction with Kortis Capital Ltd. ("Kortis") to receive up to \$50m of payments in the event of a large increase in the differential in mortality improvements between male lives aged 75-85 in England & Wales and male lives aged 55-65 in the US
- First **tradable rated** security providing protection against longevity trend risk
- Trigger is based on a longevity divergence index measuring mortality improvements in England & Wales relative to mortality improvements in the US

### Management Highlights

"Swiss Re's longevity strategy focuses on providing our clients with indemnity protection, while supporting the development of efficient capital market solutions on an indexed basis as a source of future long-term capacity"

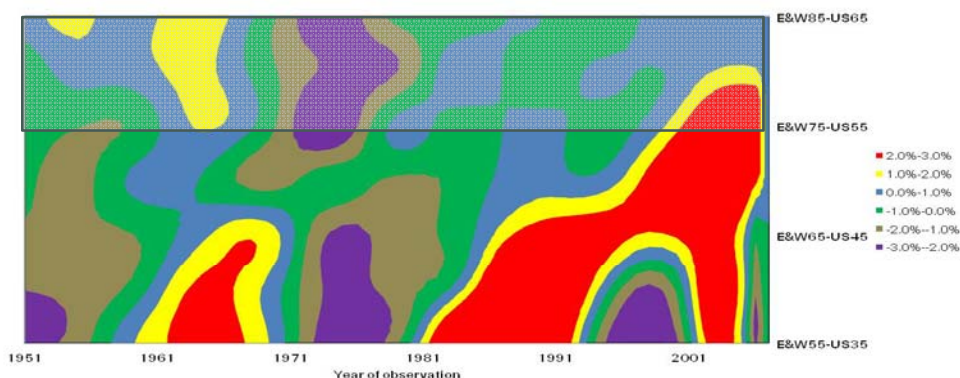
— Brian Gray, Chief Underwriting Officer, Swiss Re

"The Kortis programme is of particular note as it provides protection against adverse deviation in mortality improvements for both Swiss Re's mortality and longevity portfolios, whilst taking into account the complementary nature of the two risks"

— Christian Mumenthaler, Head Life & Health, Swiss Re

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## Differential mortality improvements: England and Wales vs US



Graph shows difference in improvements at age X in England and Wales and age X-20 in USA  
source:HMD, Swiss Re calculation

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## Questions or comments?

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Expressions of individual views by members of The Actuarial Profession and its staff are encouraged.

The views expressed in this presentation are those of the presenter.

