



The Actuarial Profession

making financial sense of the future

Mortality & Longevity Seminar Steven Baxter



Putting insights into practice

12 June 2012

4 golden rules....

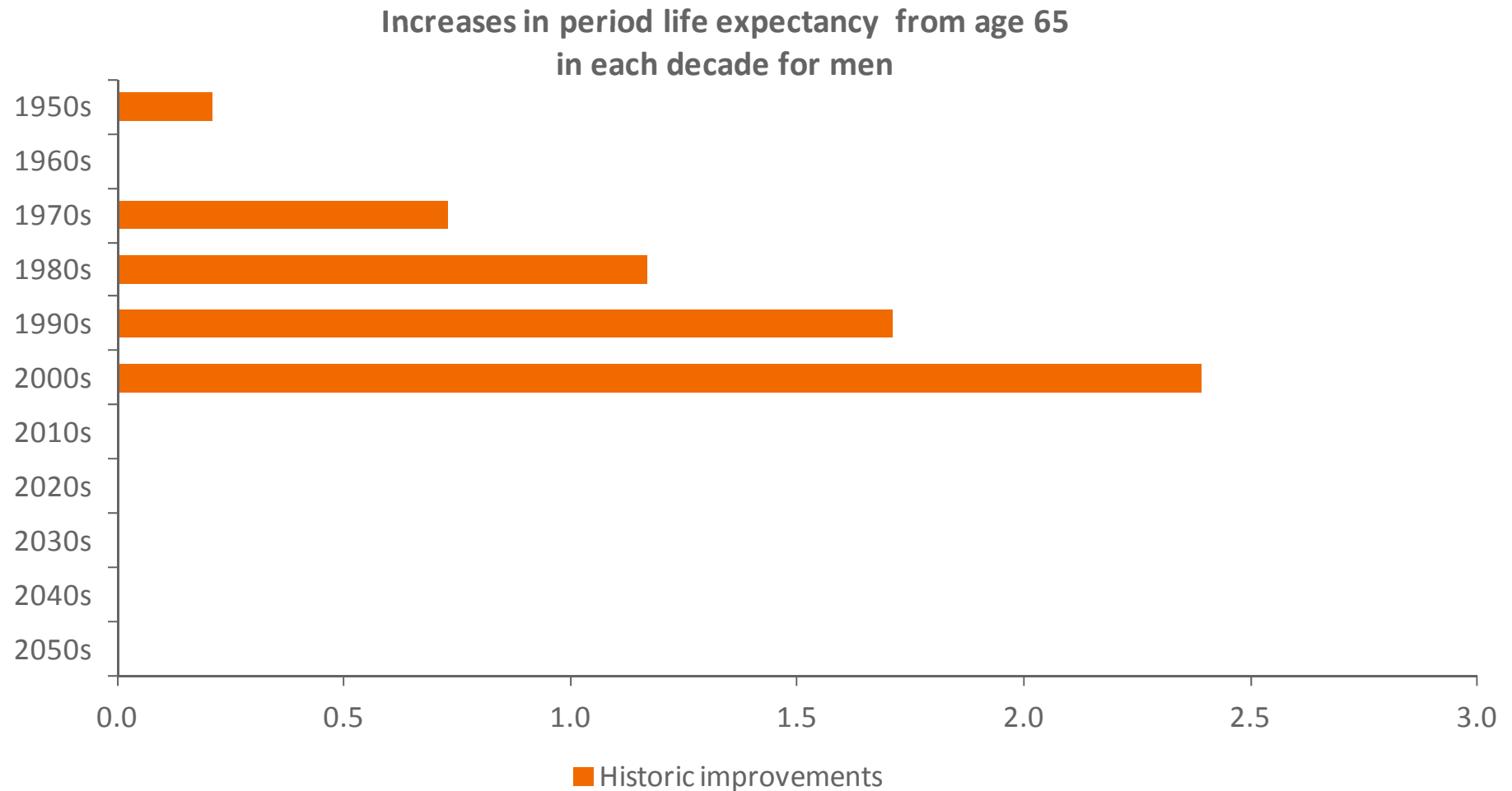
1. Be alert to our limitations
2. Use a common language
3. Keep it real
4. Don't be blinkered



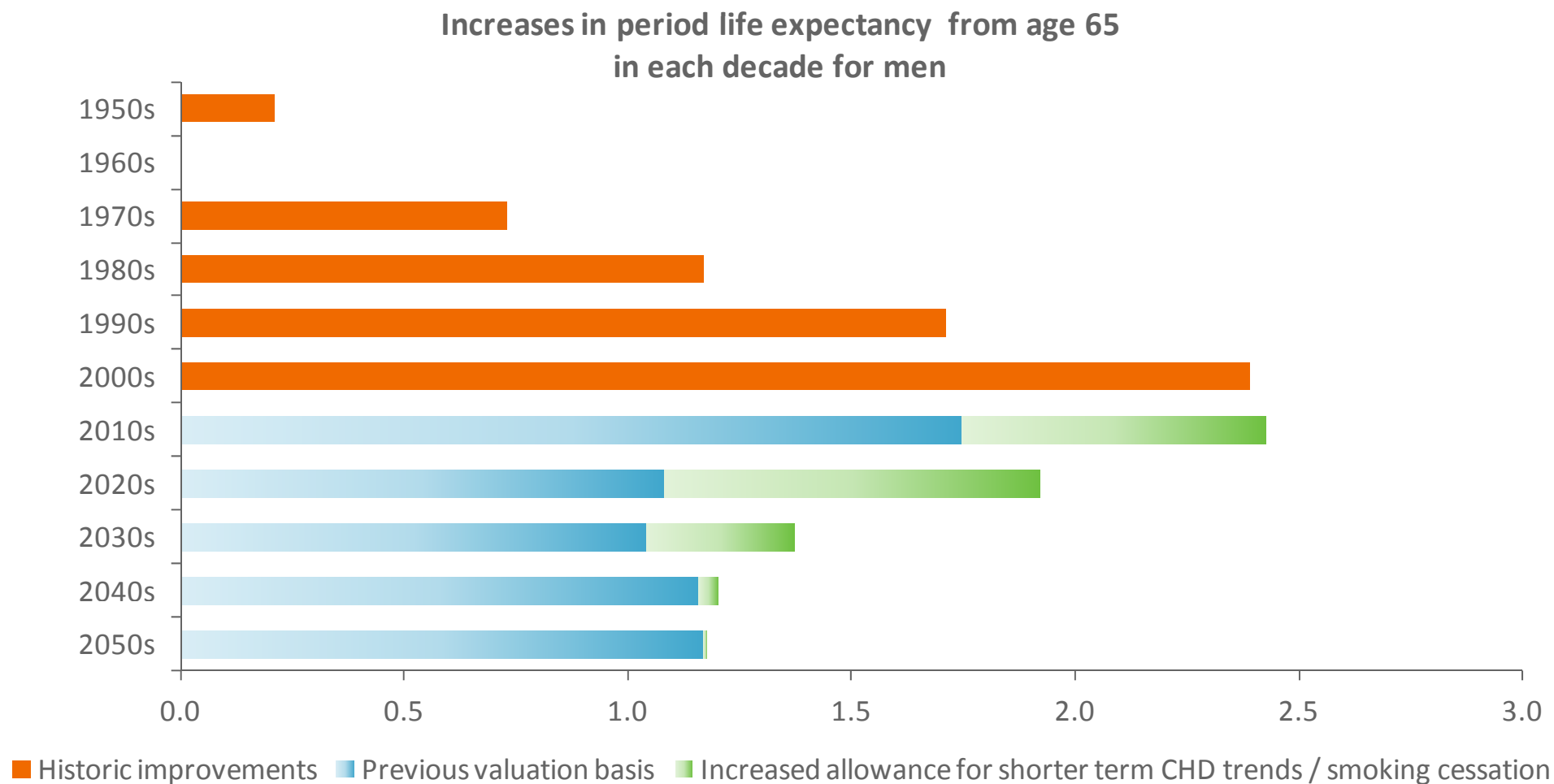
Keeping it real

Using ‘real world scenarios’

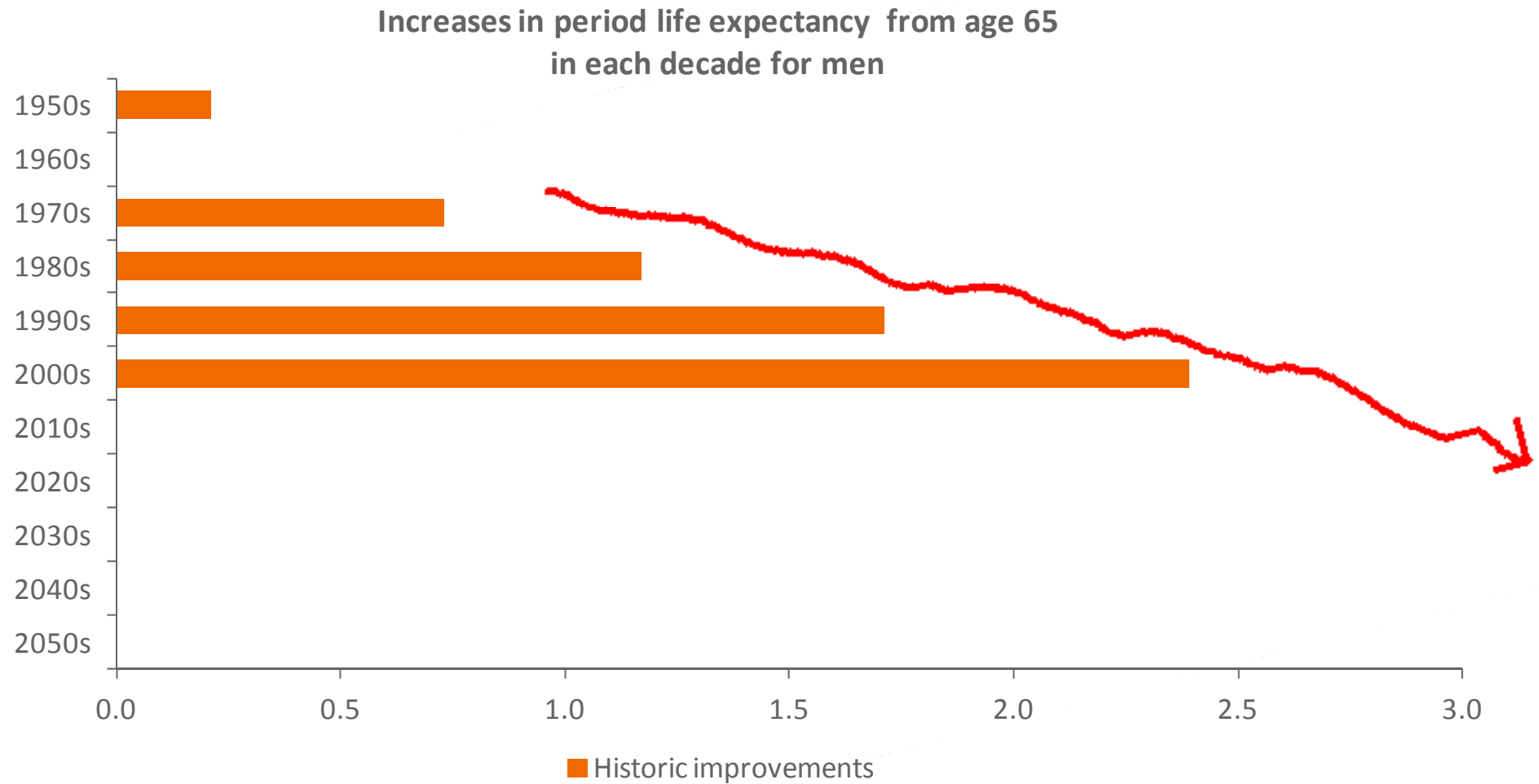
Historic increases in life expectancy



Possible assumptions



Two more plausible options?



Keeping it real

- Much more rapid eradication of mortality from **heart disease** than historic trends would predict – dropping to 1/3rd of current levels by 2020 with **almost complete removal by 2030**.
- Very major breakthroughs in our understanding of the ageing process are made within the next 5 years, with drugs developed and passing drug approval by 2030. This understanding has particular relevance to cancer resulting in a '**magic bullet**' - mortality rates from **cancer** dropping by 2/3^{rds} within 10 years of introduction of the drugs i.e. by 2040.
- Mortality amongst over 90s owing to causes such as senility, 'old age', etc... falls very rapidly from 2030s onwards as we apply our **knowledge of the ageing process**.
- 50% of all **respiratory diseases** eradicated by 2040, with a **major breakthrough** resulting in 80% eradicated by 2050.



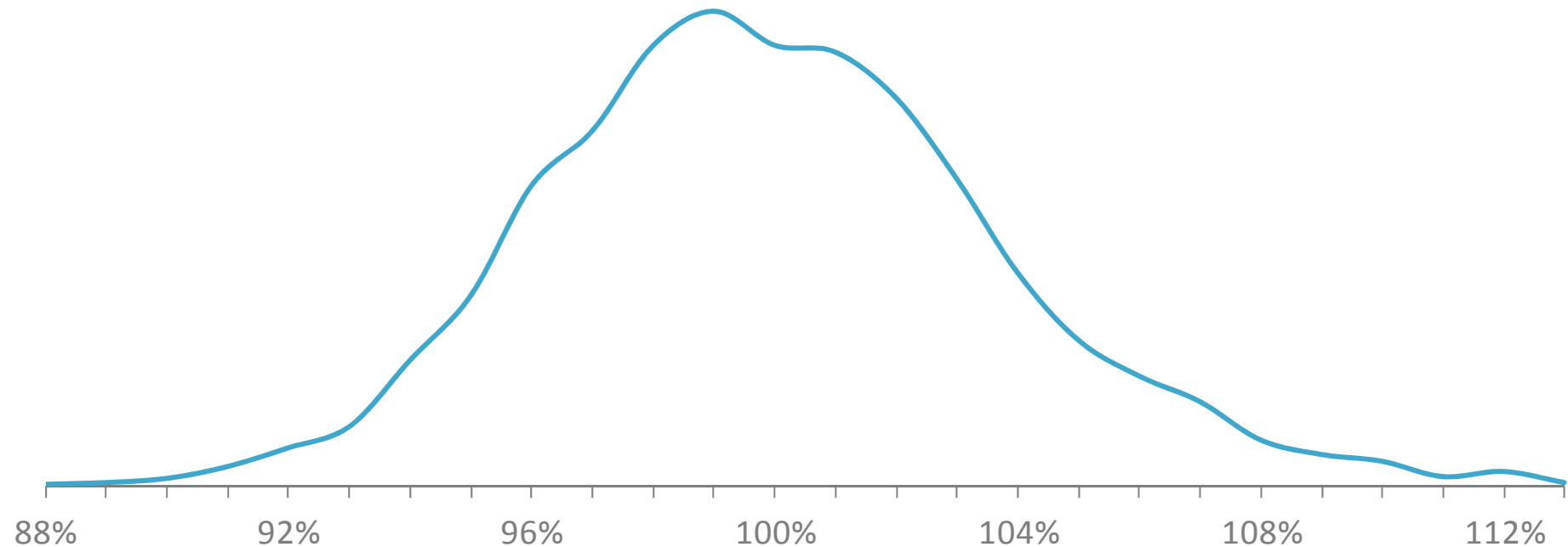
We shouldn't blinkered to the range of possible outcomes

An uncertain future

Longevity leads to uncertainty in liability values

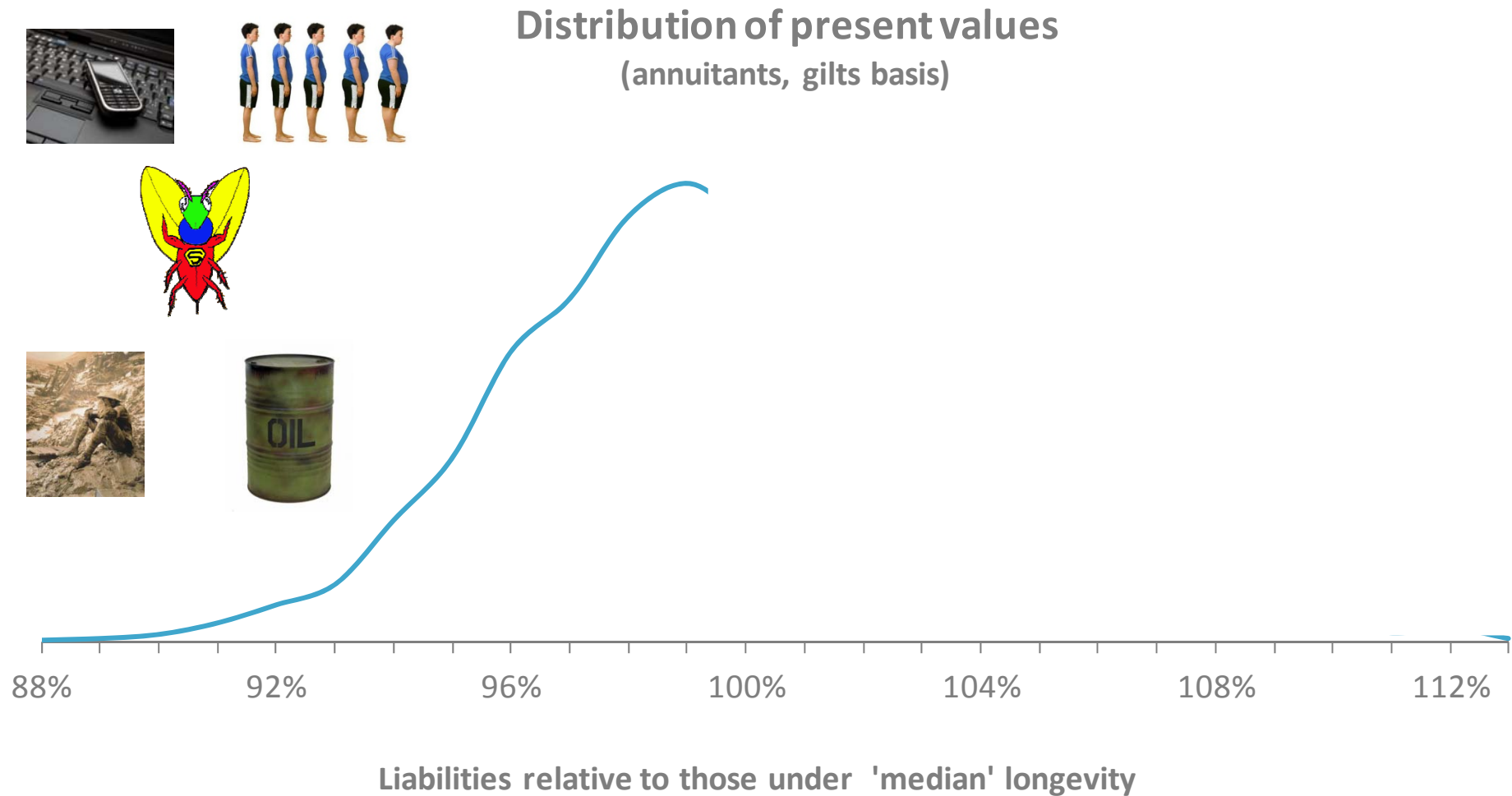
(Sample annuity book)

Distribution of present values
(annuitants, gilts basis)



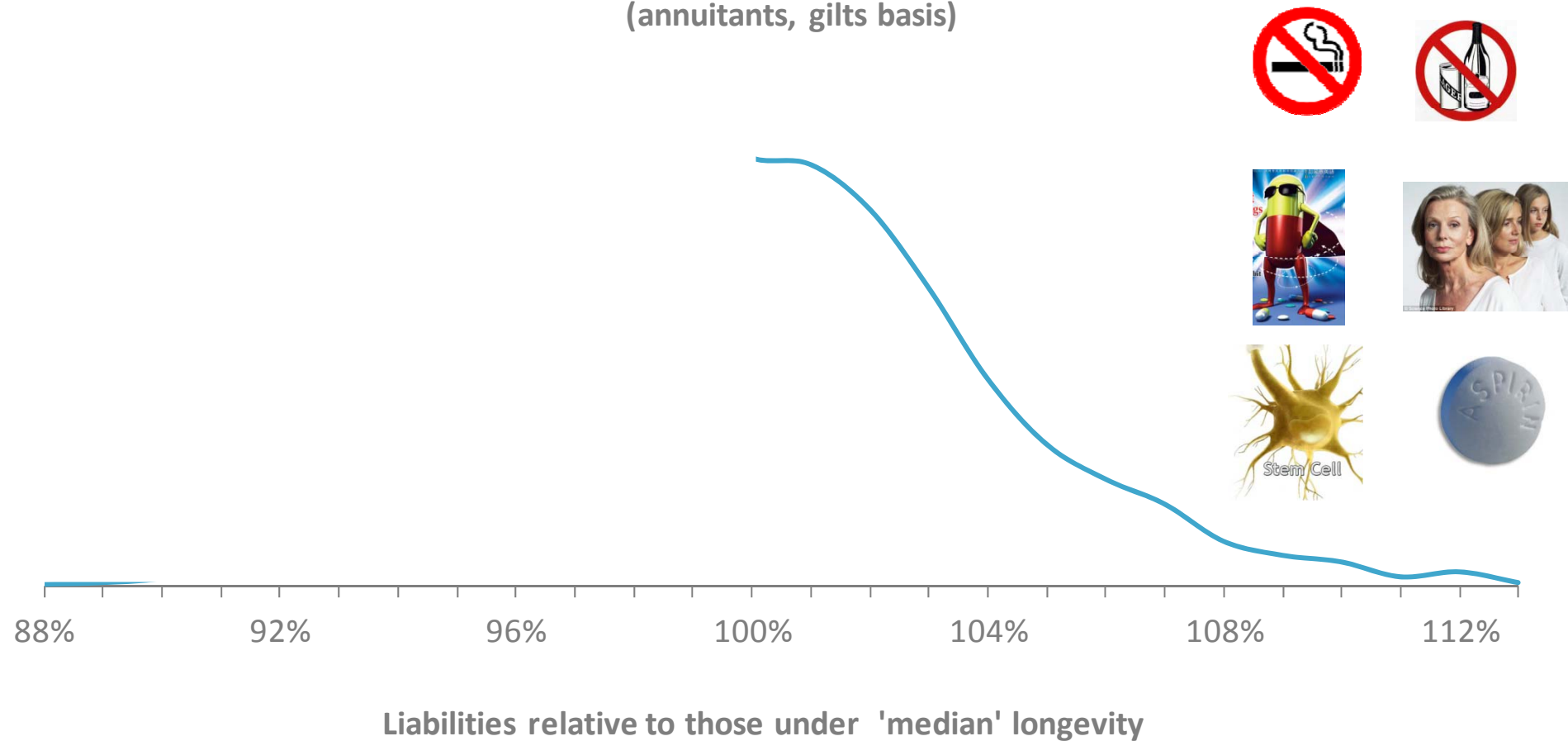
Liabilities relative to those under 'median' longevity

Accelerants and decelerants



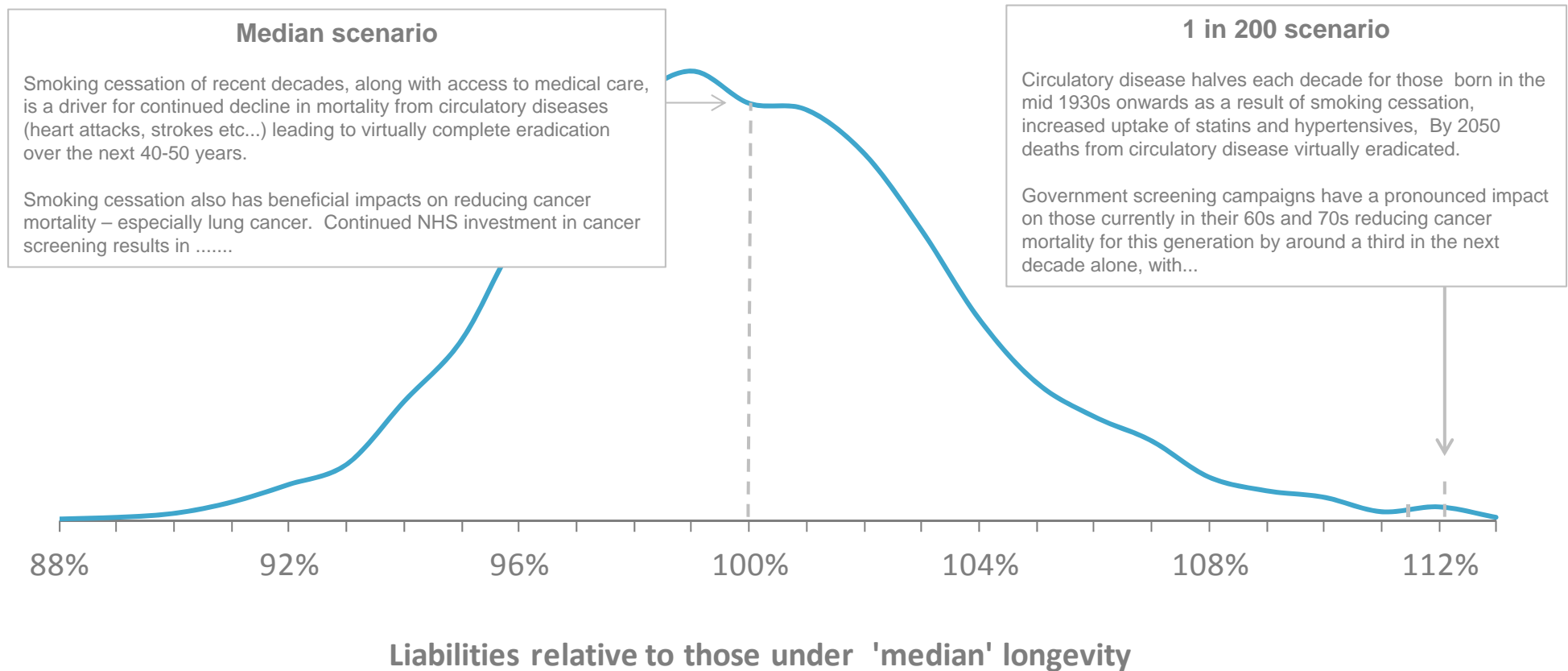
Accelerants and decelerants

Distribution of present values
(annuitants, gilts basis)



Communicating points on the risk distribution

Distribution of present values (annuitants, gilts basis)



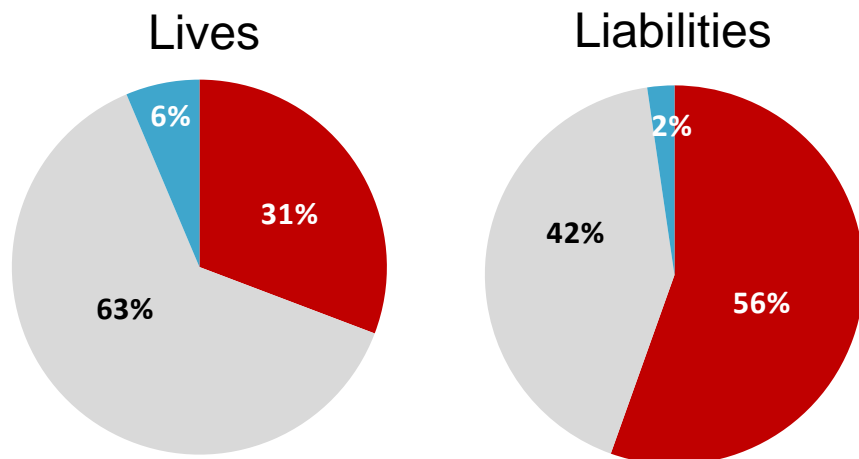


We are all different

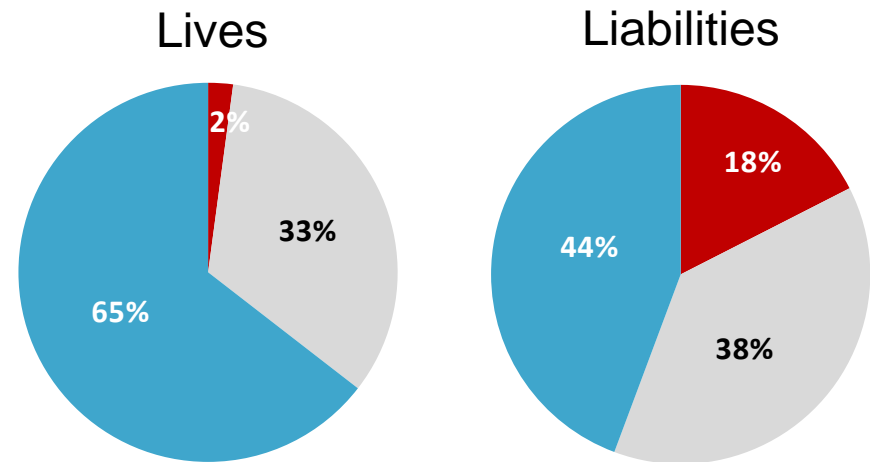
**A final thought on
basis risk**


Are population level trends and behaviours the right thing to focus on?

Financial services client



Distribution client



 Routine / managerial

 Intermediate / lower managerial

 Higher managerial / professional

Medical and behavioural insights add practical value in...

- Engaging stakeholders with our assumptions
- Validating outputs from stochastic longevity models
- Appreciating basis risk

Questions or comments?

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.

