### **MERCER**



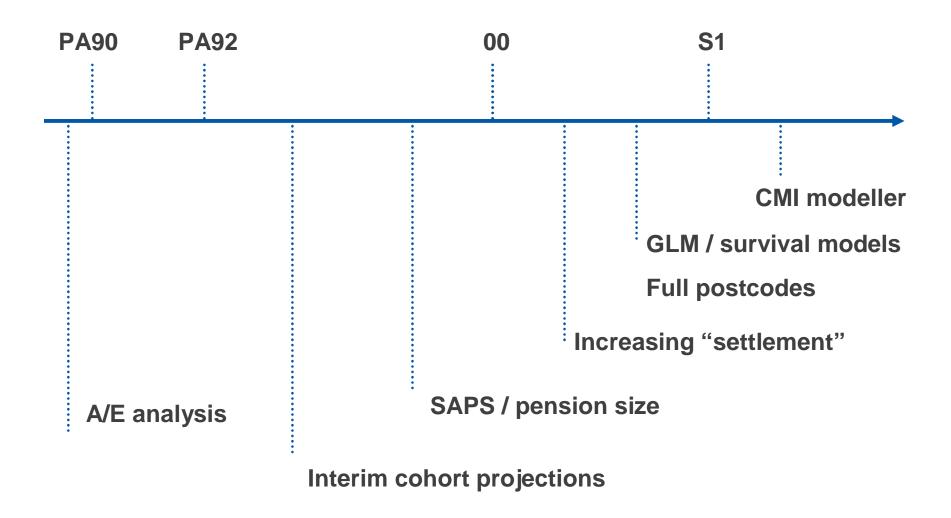


22<sup>nd</sup> October 2009

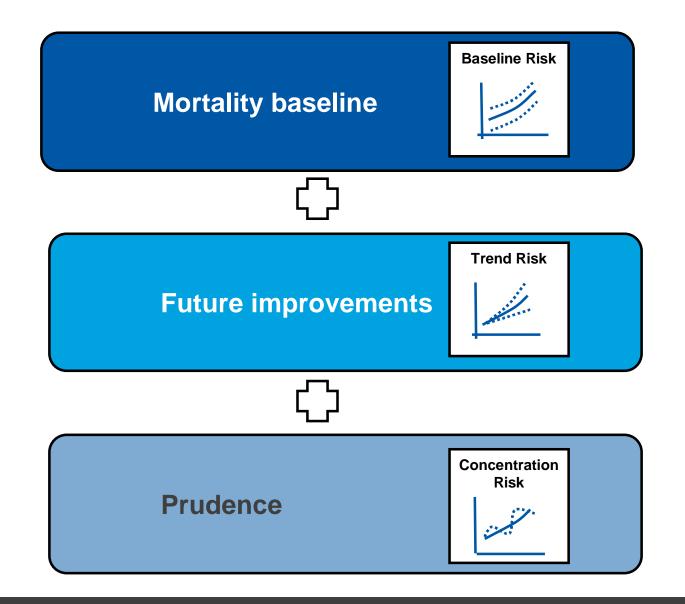
D1 - Drivers for change Uncovering scheme-specific mortality

Gordon Fletcher FIA

### Introduction



### The framework

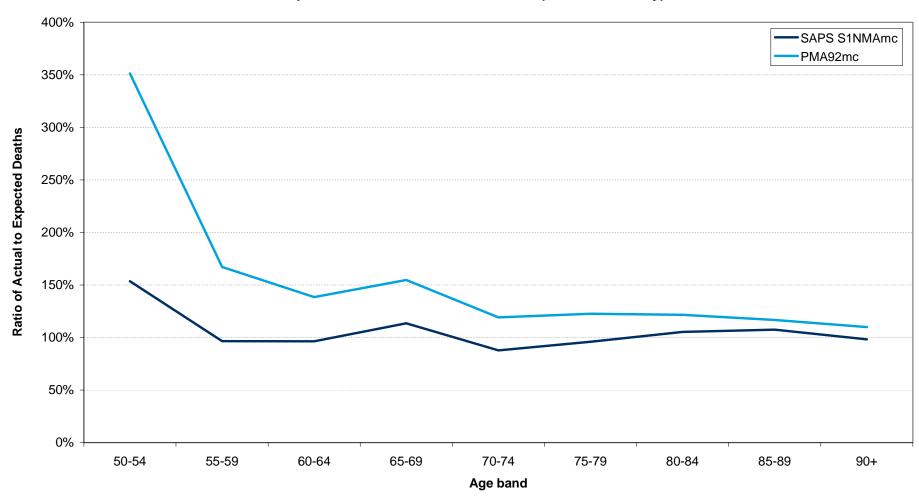




# **Mortality baseline**



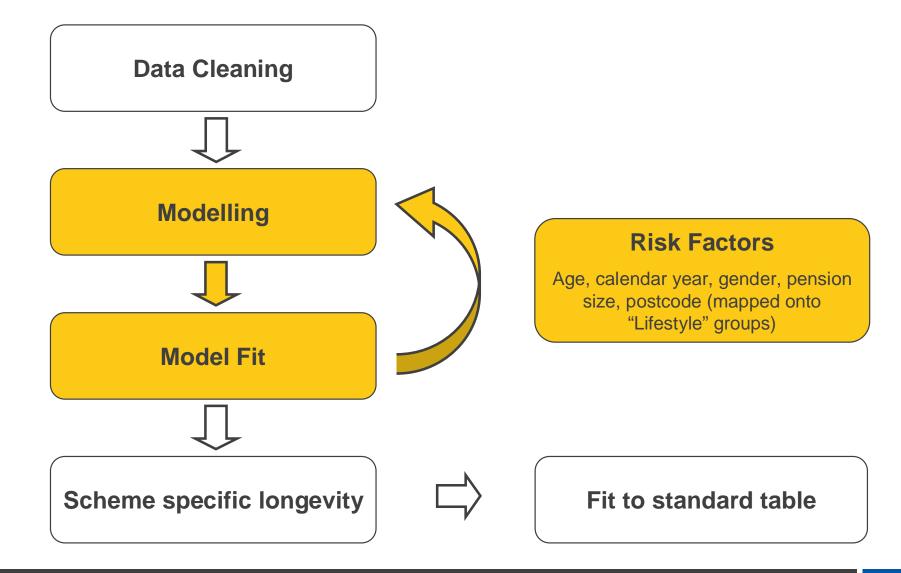
## Actual to expected deaths Comparitor: PMA92mc and S1NMAmc (C=Year of study)





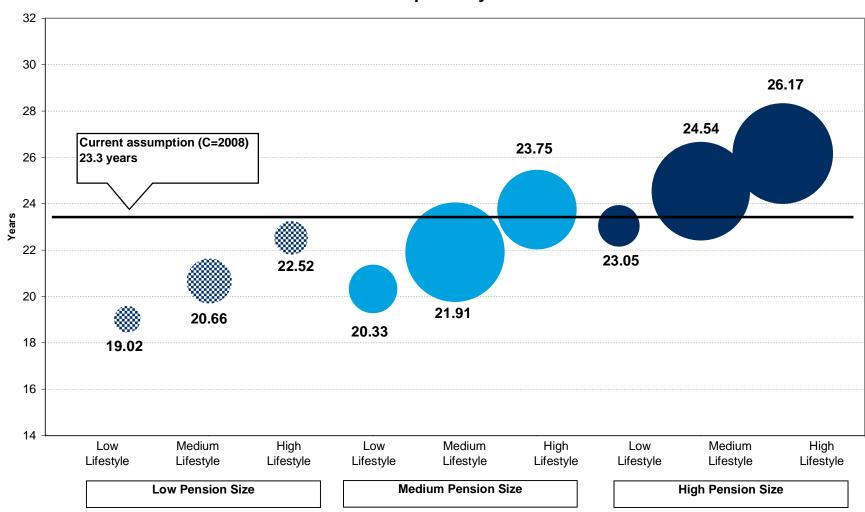
### **Modelling the baseline**

"Survival model"



# Modelling the baseline Range of life expectancies

#### Male Life Expectancy from 60

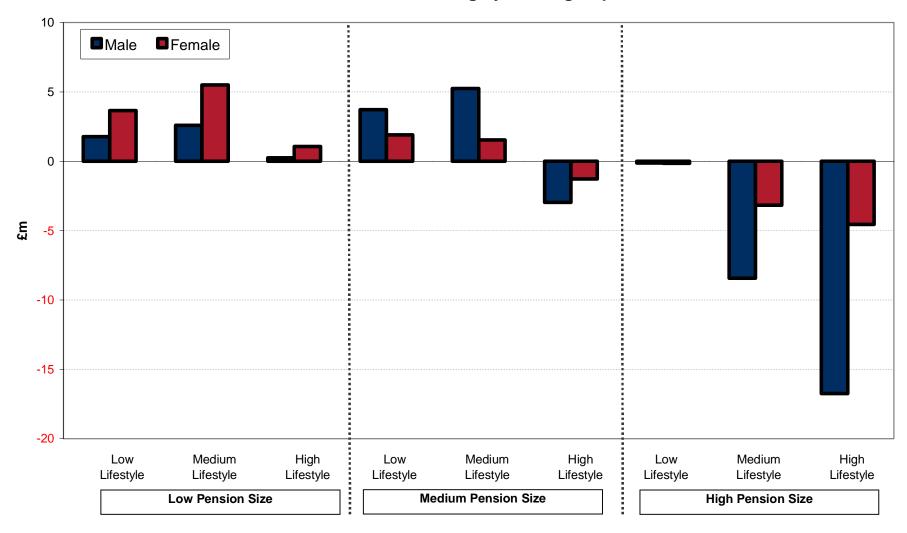




### **Modelling the baseline**

### Extent of over/under reserving

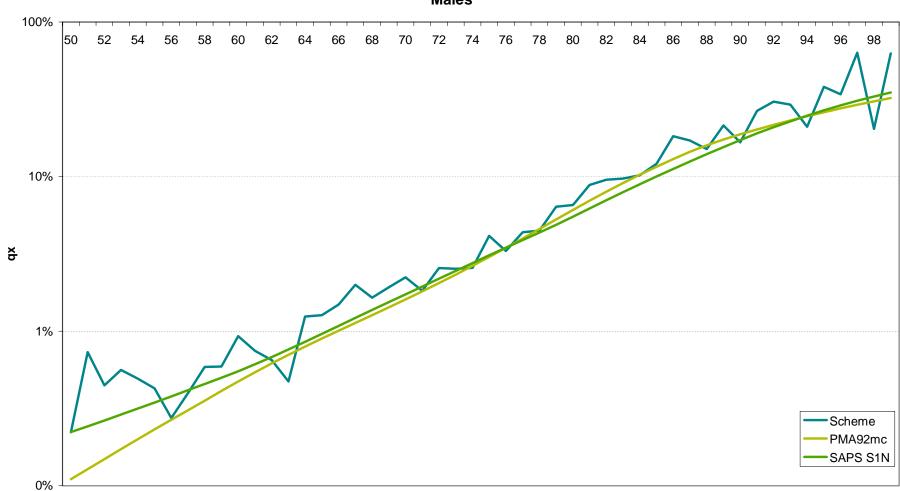
#### Under / over-reserving by model group





# Modelling the baseline Demographic "fit"

#### **Crude mortality rate** Males

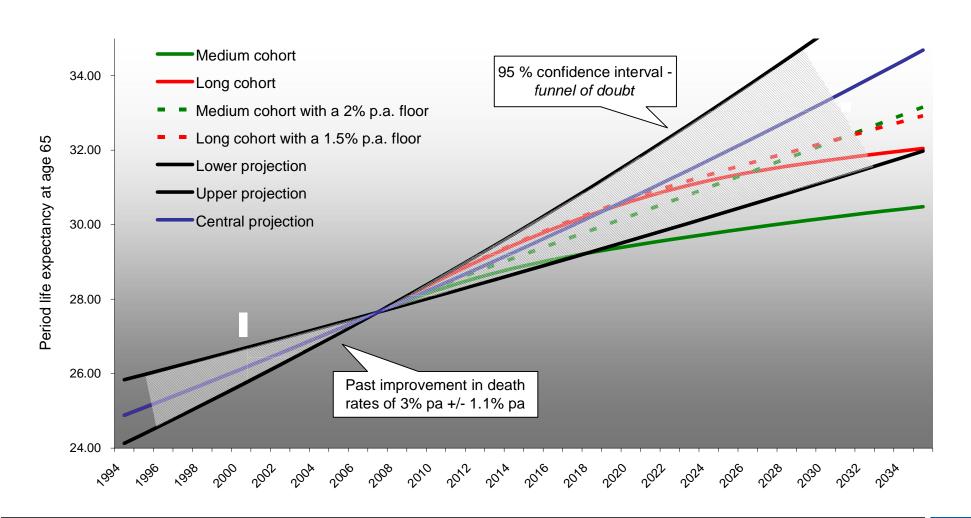




# **Future improvements**

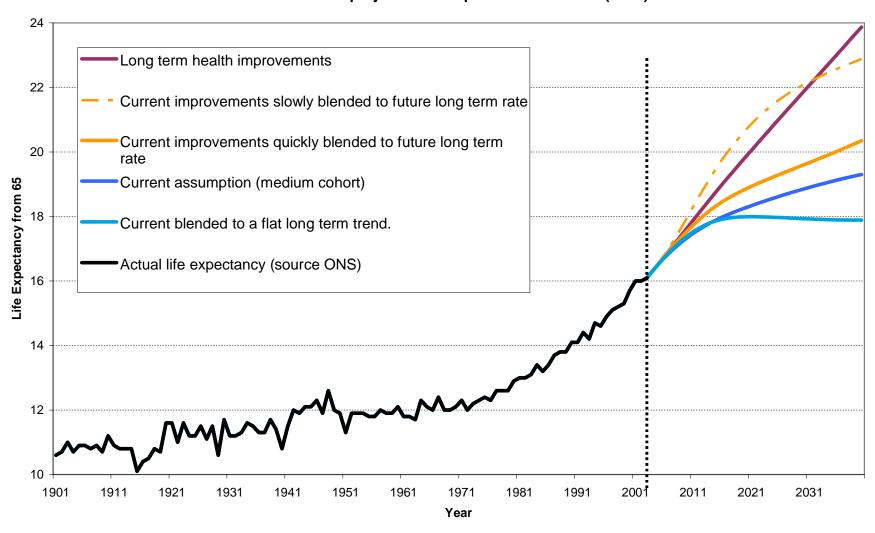
#### **Scheme specific past improvements**

### Future Projected Improvements in period Life Expectancy (highest liability group) - "Funnel of doubt"



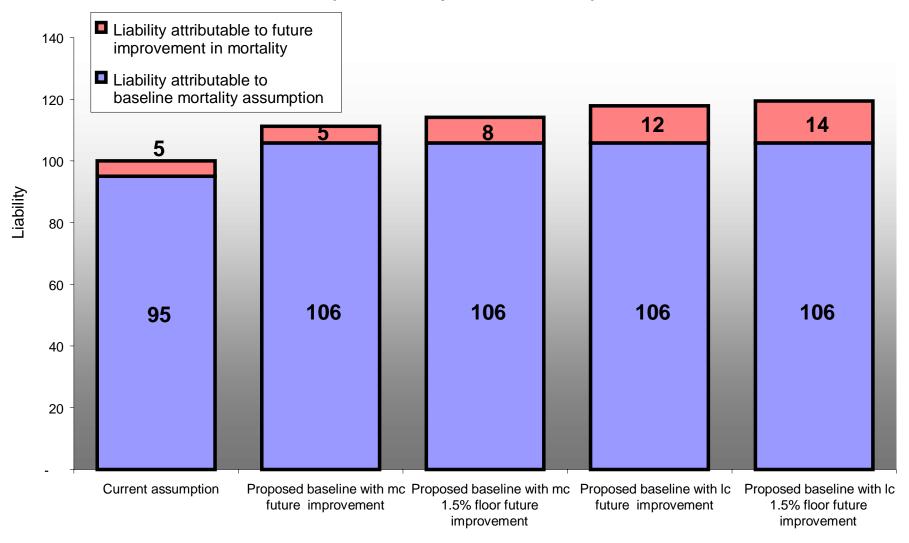
### **Future improvements**

#### Historical and projected life expectancies from 65 (male)



### Future improvements – effect on liability

#### Impact on liability on various assumptions

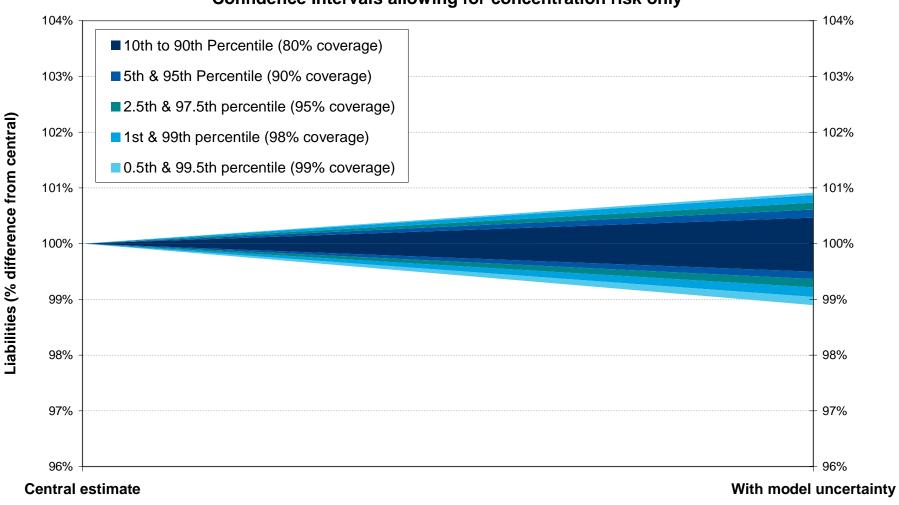




## Prudence

# Prudence Concentration risk

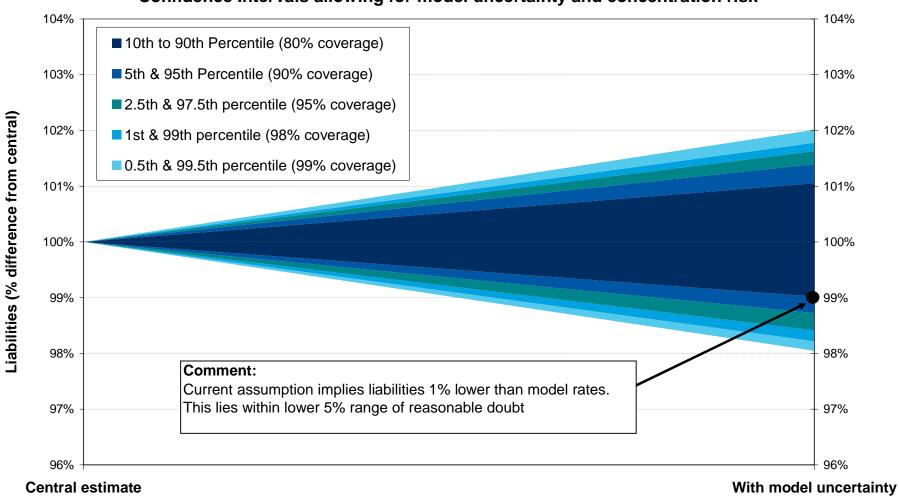
## Baseline mortality Confidence Intervals allowing for concentration risk only



#### **Prudence**

#### Concentration risk and model uncertainty

## Baseline mortality Confidence Intervals allowing for model uncertainty and concentration risk



## MERCER

