

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

Momentum Conference 2011  
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## Do enhanced annuities damage the market?

2 December 2011

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### Hypothetical exam question, subject Life fellowship

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You are the Pricing Manager of XYZ Ltd, a medium sized U.K. proprietary office. Your company sells a wide range of protection and savings contracts – but does not sell any annuity business. Your Sales Director tells you that XYZ will be entering the annuity market and asks you to consider how you will price such business.

(i) How will you set the best estimate mortality for annuities [10]

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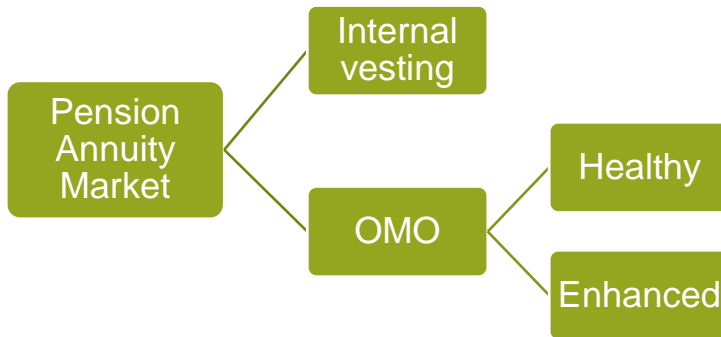
## Naive student answer ??

- No internal experience
- So start with standard tables
- Assuming retirement at normal age, PNMA00 and PNFA00
- Obtain CMI data on mortality from say 1990 – 2006
- Use this to reset the level of PNxA00
- And to derive improvements (along with population data etc)
- etc
- *You just lost the company approx 7% of the single premiums sold*
- *If you sell £1bn of annuities, 10% of market, that's £70m lost*

## Agenda

- A brief history lesson: introduction of the open market option and growth of the Enhanced market
- Mortality differentials for open market annuities:
  - socio-economic/size/channel
- Pricing perspective:
  - the effect of the Enhanced market on residual OMO mortality

## Overview



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## A brief history lesson



- Originally **all** pension annuities **vested internally**

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## A brief history lesson

- UK Finance Act of 1978 introduced **Open Market Option (OMO)**
  - Annuity could be bought from a **different company** to the pension provider
  - Pension providers did not have to disclose this right to pensioners
  - So **take-up rate was low** initially
- But take up of the Open Market Option did **improve significantly**
  - In 2001 it became **mandatory** for a Pension Provider to **disclose** a pensioner's options

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## A brief history lesson

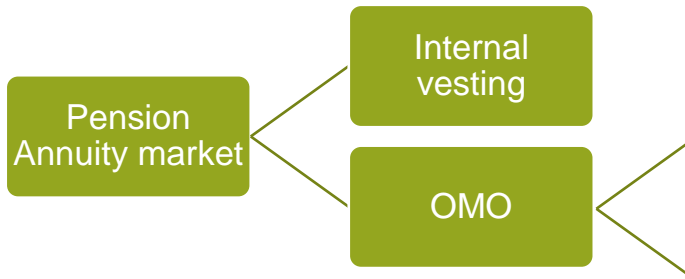


- Split in Annuity Market caused by **OMO**

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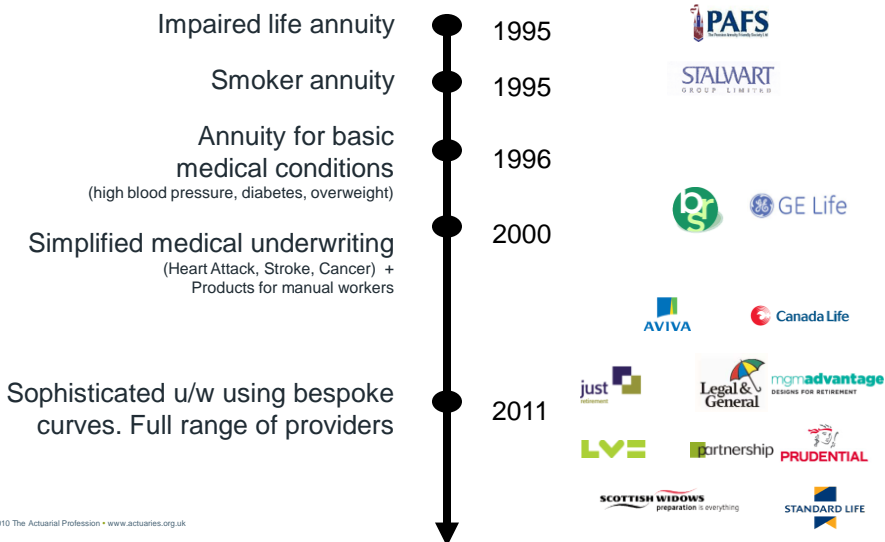
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## A brief history lesson



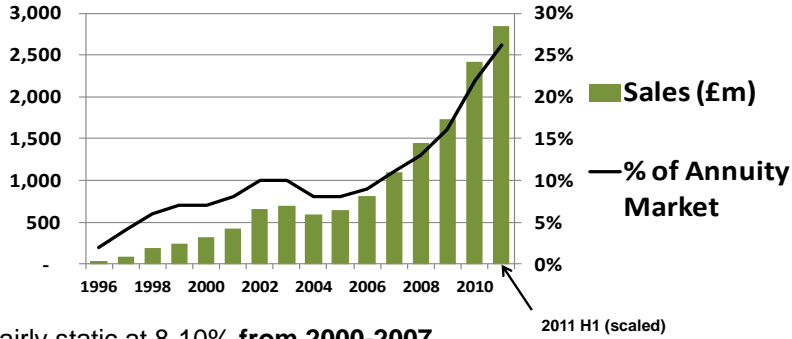
- Split in Annuity Market caused by **OMO**
- Further split in OMO caused by **Enhanced Annuities**

## A brief history lesson



## A brief history lesson

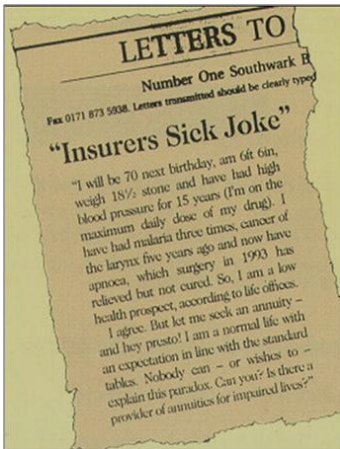
Sales of Enhanced Annuities over time



- Fairly static at 8-10% from 2000-2007
- Enhanced **Currently** around 25% of total annuity market
- Could **ultimately** make up 40%

Source: FSA quarterly new business statistics  
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## Do enhanced annuities damage the market?



### 1995 – Letter to FT

**I will be 70 next birthday...**  
 ...and have had **high blood pressure** for 15 years...  
 ...and have had **malaria** 3 times...  
 ...and **cancer** of the larynx.

So, I am a **low health prospect** for a protection policy. I agree.

But I'm a **normal life** with an expectation in line with the standard tables for annuities.

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## Do enhanced annuities damage the market?

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**2011**

- Annuity rates are now specific to a retiree's
  - Medical condition
  - Lifestyle
- Competitive market with many providers
- Annuity rates available now are significantly higher than in 1995

Enhanced annuities **enhance** the market for the **customer**

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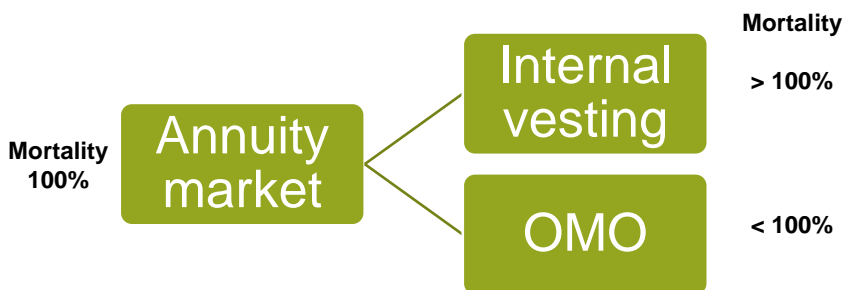
## Hypothetical Exam Question, subject Life Fellowship

Your Sales Director tells you that XYZ will be entering the annuity market and asks you to consider how you will price such business.

(i) How will you set the best estimate mortality for annuities [10]

1. Need to consider **segmentation** of the annuity market

## Mortality differentials for open market annuities



- Mortality differential because of **socio-economic mix**



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## Mortality differentials for open market annuities

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- **Channel**
  - Most Open Market annuity purchases are through **IFA channel**
  - Recent ABI figures showed that IFA sales made up
    - **92%** of total Open Market sales
    - **98%** of enhanced annuity sales
  - Channel is an indicator of **socio-economic class**

Source: ABI quarterly new business statistics, Q2 2011

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## Mortality differentials for open market annuities

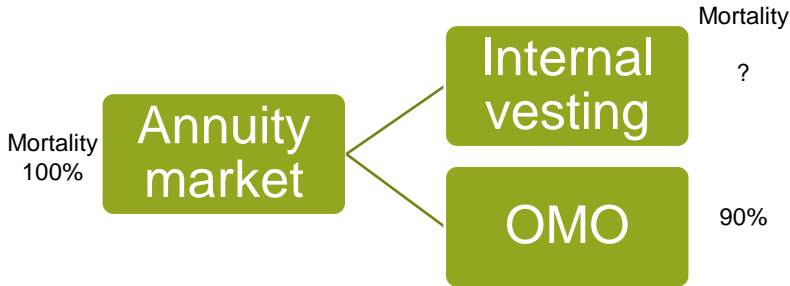
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- **Size**
  - Small funds are not accepted by most Open Market offices
  - ... which makes for less variation in size in the Open Market
  - ... and a **higher average fund size**
  - And size is an indicator of **socio-economic class**

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## Mortality differentials for open market annuities



- Socio-economic differential results in **OMO mortality** of 90%
- Estimated from impact of **size** and **channel**

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## Mortality differentials for open market annuities

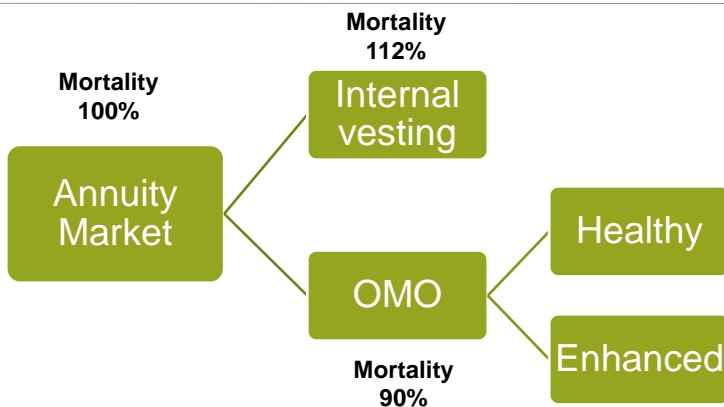


- So Internal Vesting mortality derived as 112% of market

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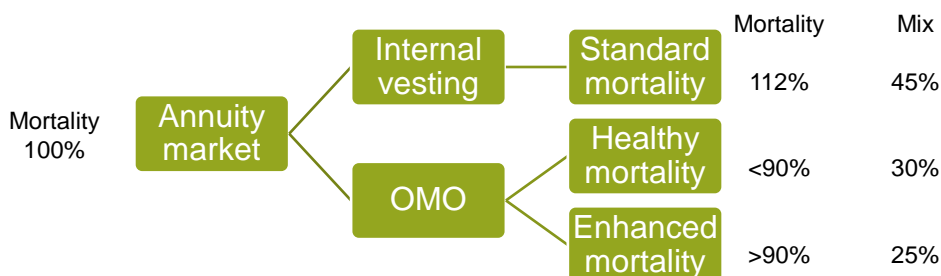
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## Pricing perspective – the effect of the Enhanced market on residual OMO mortality



- Can we get the excess enhanced annuitant mortality and the impact on residual healthy annuitant mortality from the CMI?

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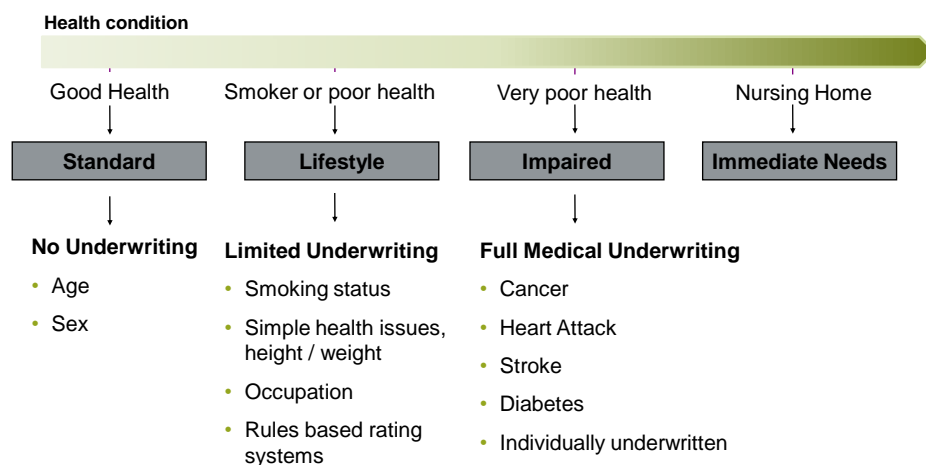
## Pricing perspective – the effect of the Enhanced market on residual OMO mortality

- Can we get the excess enhanced annuitant mortality and the impact on residual healthy annuitant mortality from the CMI?
  - “00 Tables” based on insured lives experience up to 2002
  - So the bulk of this experience relates to lives prior to the rise of the Impaired life annuity market
  - Currently its not possible to differentiate between Internal vesting, enhanced and healthy OMO within the CMI data
- Can we model excess enhanced annuitant mortality?

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## Spectrum of annuity types



Source: PartnerRe

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## Types of Enhanced annuities

- Lifestyle (simple underwriting)
  - Main example is Smoking (30% uplift is not unheard of)
  - But also Body Mass Index
  - Job type (manual workers can often get 5% more)
- Impaired health (specific / more complex underwriting)
  - Rates vary enormously according to
    - The condition
    - The severity
    - Duration since diagnosis

Source: rightannuity.co.uk  
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## Pricing perspective – the effect of the Enhanced market on residual OMO mortality

- Can we model excess enhanced annuitant mortality? From:
  - Population statistics (e.g. Hospital Episode Stats, cancer survival stats, GPRD\*, research publications)
  - Reinsurers data
- Also need **proportion of each type of enhanced annuity sold** to derive excess mortality of enhanced annuity market. From:
  - Reinsurers
  - Market studies (e.g. brokers, consultants, publications)
  - From population data on prevalence (e.g. data on cancer by site and stage from registries)

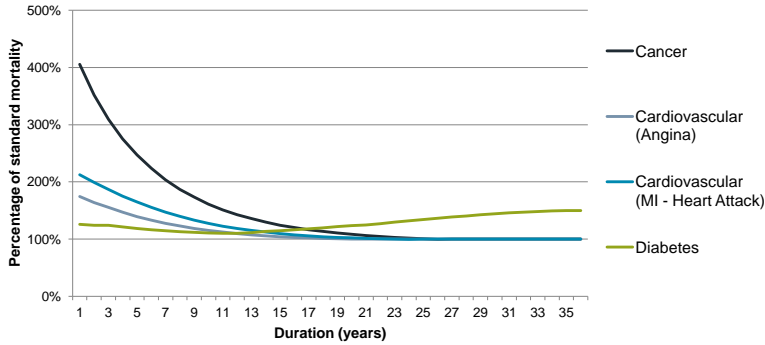
\* General Practitioners Research Database

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## Pricing perspective – the effect of the Enhanced market on residual OMO mortality

- Examples of excess enhanced annuitant mortality

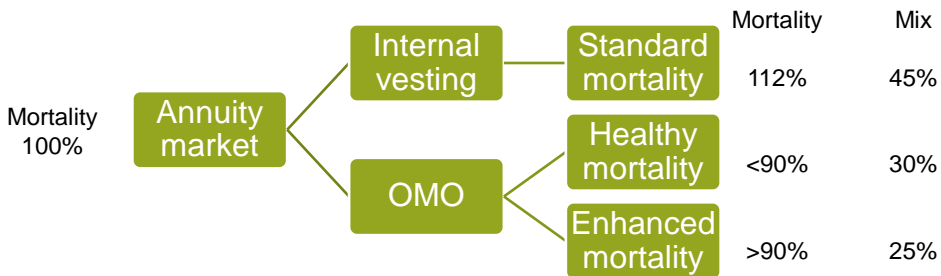


- Proportion of enhanced sales: these examples only make up approximately one-quarter of enhanced annuity market

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## Pricing perspective – the effect of the Enhanced market on residual OMO mortality



Can the impact on residual healthy mortality be derived?

- By assessing mortality of Internal vesting and Enhanced mortality, the healthy OMO can be solved as the balancing item

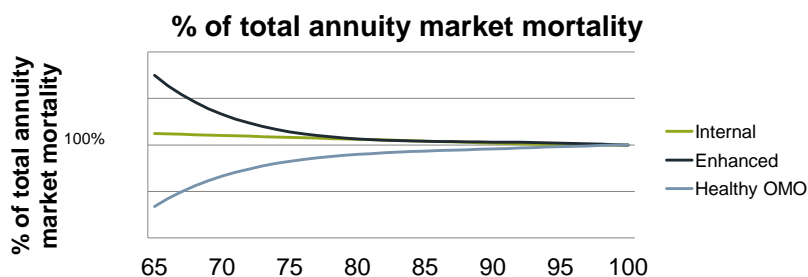
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## Pricing perspective – the effect of the Enhanced market on residual OMO mortality

Can impact on residual mortality be derived?

- The Internal Vesting shape
- The Enhanced mortality shape
- The Healthy mortality shape



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## Pricing perspective – the effect of the Enhanced market on residual OMO mortality

- Risk of misestimating the mortality within a portfolio as result of split between Internal and Healthy OMO. Examples:
  - If you think the mortality of your portfolio is not affected because you don't sell OMO products
  - If you can not identify in your portfolio the internal vestings and healthy mortality cases – results in errors in valuation / EV
  - If you are a reinsurer and you are not provided with the split of the business between internal vestings and Healthy OMO in the portfolio you are studying

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## Pricing perspective – the effect of the Enhanced market on residual OMO mortality

- A final point :
  - The mix between Internal, Enhanced and OMO Healthy is varying over time
  - So the derivation of residual standard is not fixed but varies from year to year
  - Continual reassessment is essential!

## So what is the real answer ?

### The Naive Answer

- Use standard tables
- Adjust using CMI data
- To current date
- Add improvements

**Fail**

### The Informed Answer

- Presence of NSA has split the market
- Need to consider NSA
  - Both the mortality
  - And the proportion sold
- To determine the residual mortality

**Pass!**

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## Conclusion: Do enhanced annuities damage the market?

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- Enhanced annuities are changing the market and that needs to be taken into account
  - The presence of the enhanced market affects the mortality of residual standard annuities
  - The residual standard mortality is affected by both the mortality and the volume of enhanced annuities
  - It can make a material difference to the cost of a standard annuity
  - It affects all providers – not just those that write enhanced annuities

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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.



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